AN EDITEL PUBLICATION

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Plant growth regulators
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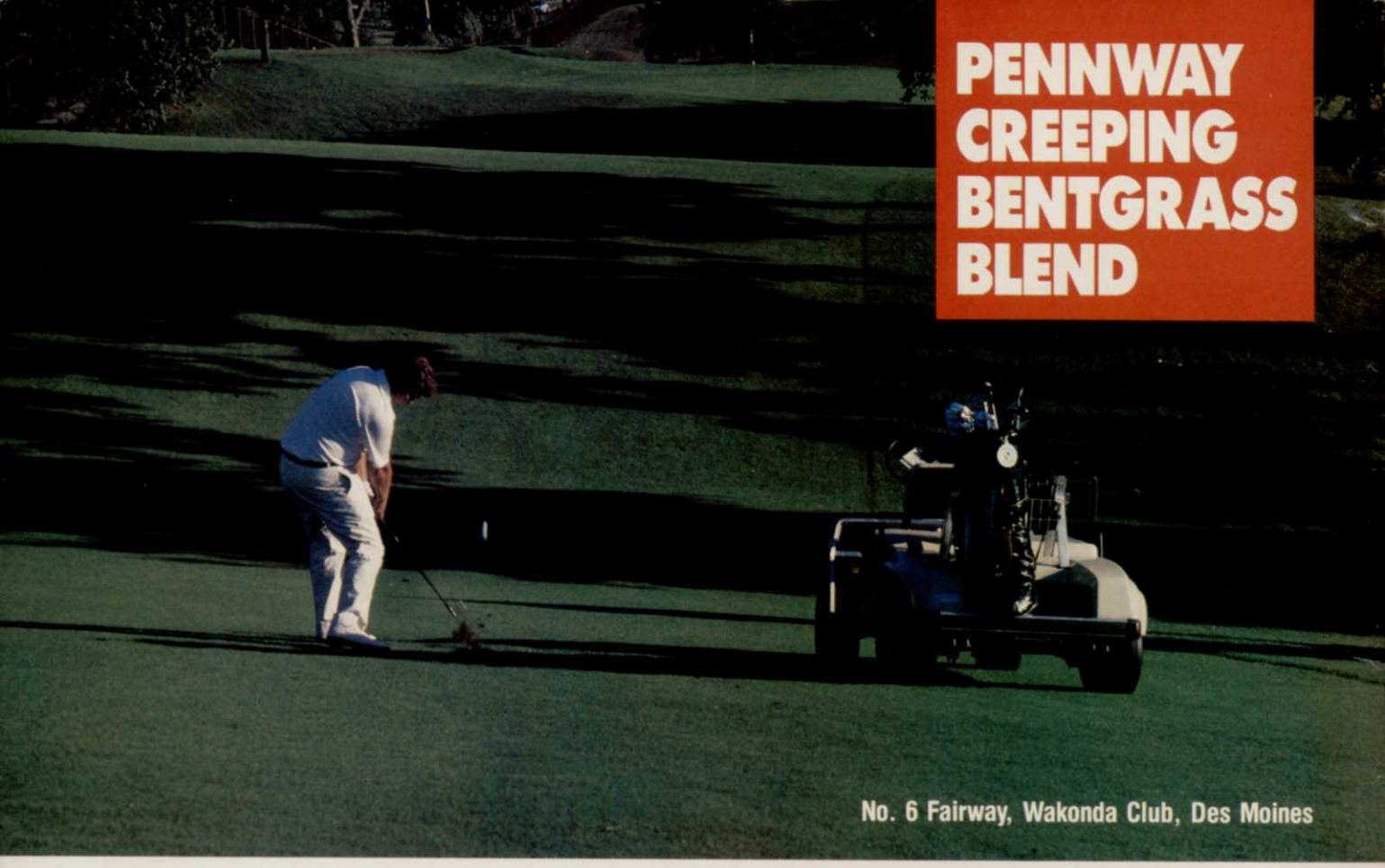

PENNWAY CREEPING BENTGRASS BLEND

No. 6 Fairway, Wakonda Club, Des Moines

GIVE IT A DIVOT!

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Nick Dunn, Superintendent
Wakonda Club, Des Moines, IA

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OCTOBER 1988, VOLUME 27, NUMBER 10

LANDSCAPE MANAGEMENT

Formerly WEEDS TREES & TURF

On the cover: Tractors for landscapers, as seen by photographer Larry Kassell

1 POCKET GUIDE
LANDSCAPE MANAGEMENT'S, first pocket guide to versatility weed control, disease control and insect control.

30 COVER STORY: COMPACT TRACTORS
by Ken Moehle. Utility vehicles with selected attachments offer a more versatile machine you can use throughout the entire year.

36 SO DEMANDING
by Jeff Sobul and Jerry Roche. Seed harvests are up from 1987. But escalating demand will keep supplies short, if not non-existent, into 1989.

45 GROWTH REGULATORS FOR TREES AND SHRUBS
by Thomas J. Banko and Marcia Stefani. The further development of plant growth regulators may make them more applicable to landscaping.

50 ON DESIGN

52 WINTER OVERSEEDING
by A.R. Mazur. Switching from warm-season to cool-season turf and back again is no longer a matter of luck.

60 UTILITY VEHICLES
Some utility manufacturers are getting away from the one do it all vehicle to machines designed for specialized tasks. But by no means is it the end of the "do-everything" vehicle.

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BPA ABP EDGELL COMMUNICATIONS

"We chose Triathalawn Tall Fescue for Deer Creek based on National performance trials for our region ...and some sound advice from Williams Lawn Seed."

Larry Hanks, VP Golf Operations; North Star Development Co., Inc. at Deer Creek, Overland Park, KS.

"When planning our World-class, Robert Trent Jones II designed golf course in the Kansas City area, we had to seriously consider our hot, dry summers. We simply could not leave the all-important turf areas to chance. Penncross bent was selected for the greens, zoysia for the tees and fairways, and tons and tons of Triathalawn blend was seeded into the roughs. Our tees, greens and fairways will receive adequate water, but we're counting on Triathalawn's deep-rooting to look good in the unirrigated areas ... especially around our stately trees.

Deer Creek is a privately owned course open for fee play. After observing how tall fescues handled the wear, shade and 1988 drought at neighboring private and public courses, we agreed that the new turf-types were up to the task. When it came to selecting a brand name, we picked Triathalawn blend, to make the *very best* of a *real good* thing."

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AS I SEE IT...

Developers learning to save trees

A few months ago, we used this space to sound a clarion call to all landscapers. Educate the public on the value of landscaping was the message. Now comes word that you've got yet another education job.

"A lot of native plants being destroyed by developers are irreplaceable," says John Stewart, a landscape architect with Brickman Industries, Long Grove, Ill.

Some developers are interested only in getting to a site, levelling everything, erecting a building or two, and getting off the site as quickly as possible. Stewart and other architects are the people responsible for filling up the vast wastelands, and he notes that a lot of material is going to waste.

"Sometimes the material is damaged on purpose, and sometimes by accident," he says. "But certainly more is being damaged than needs be."

At this point in the conversation, an image comes to mind of a huge, plodding machine scraping away everything in its path—trees, shrubs, topsoil, turf—and leaving in its wake a naked moonscape.

As early as possible, Stewart says, a site needs to be protected with snow fences and stakes to the drip line of trees. Conscientious landscape contractors and architects continue to do what they can to save these mighty oaks (and other specimens) from being devastated, "but sometimes our recommendations fall on deaf ears," Stewart adds.

Stewart was quoted in a special feature article in the *Chicago Tribune* titled "Green power: Landscaping's appeal grows." In that article, reporter Elizabeth Hopp-Peters quotes Stewart as liking to specify trees 9 to 14 inches in diameter on new housing and commercial developments.

What Stewart and Hopp-Peters failed to say in that original article is that trees 9 to 14 inches in diameter ain't cheap.

One developer referred to in the *Tribune* article actually reroutes roads and builds houses in different directions as those originally planned, in order to save existing trees and shrubbery. But if developments in our area are any indication, this particular developer is the exception and not the norm.

The message, then, that the industry should be conveying to developers is: Save the Trees.

Jerry Roche

Jerry Roche, editor

LM

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Circle No. 114 on Reader Inquiry Card

GOLF COURSES

Wildflowers and mulch blankets cure woes of Evansville Country Club superintendent

The combination of wildflowers and mulch blankets has turned a nuisance area at the Evansville Country Club into an area of blooming colors.

The third tee at the Evansville Country Club is bounded by two steep slopes. The back slope faces a wooded area and is protected by ground cover. The side slope faces an adjacent fairway, in full view of the players. The side slope has been a continual maintenance problem for club superintendent Gary Shetler: too steep to mow, loose soil creating erosion problems.

To improve the area's appearance, a plan was developed to terrace the slope, using rip rap and grass on the flat areas.

Alan Juncker, a sales manager for North American Green, recommended the use of wildflowers and erosion control blankets. Shetler approved with the guarantee that the membership would be pleased with the results.

After preparing the seedbed last March, Juncker distributed a Midwestern wildflower blend covered with a S150 North American Green erosion blanket made of straw mulch with netting on both sides. Within several weeks, the wildflowers began emerging through the blanket cover. By early June, the wildflowers were in full bloom.

Shetler was so pleased with the results that he plans on using the same technique in other parts of the course next year.

After seeding, erosion control blankets are installed.

By June, wildflowers had come through the blanket to full bloom.

LEGISLATION

EPA proposal could hinder landscapers

Proposed worker protection standards for using agricultural pesticides could be burdensome to lawn care companies and landscape management contractors. So says Martha Lindauer, director of communications for the Associated Landscape Contractors of America.

"They would impose a lot of burdensome tasks on the employer," says Lindauer, who has been following progress of the Environmental Protection Agency's proposed standards through public hearings.

Here are some of their provisions:

- Each worker must be trained under the provisions of the standard unless the person is a certified commercial or private applicator.
- No worker shall be allowed or directed to wear home pesticide-contaminated clothing.
- Soap and single-use towels and a clean change of clothing shall be made available at each decontamination site.
- No worker is permitted to enter or remain in an area during application unless the worker is involved in the application of the pesticide.
- No pesticide shall be applied so as to contact any worker directly or through drift.

Each worker shall be informed of the location of all information about pesticides at the workplace. All information shall be displayed in English and in the language of the workers.

Special standards have also been established for workers in nurseries and greenhouses.

For more information the EPA's proposed regulations, Lindauer invites interested parties, members and non-members alike, to call or write ALCA at 405 N. Washington St., Suite 104, Falls Church, VA 22046; (703) 241-4004.

SHORTCUTS

TREE CARE

Arborists win battle with OSHA regulation

The Occupational Safety and Health Administration has conceded to the National Arborist Association on a proposed "Electrical Safety-Related Work Practices" rule, according to the N.A.A.

The proposed regulation would have made it impossible for any person to enter a tree which was closer than 10 feet to an energized conductor unless that person was a Qualified Line Clearance Tree Trimmer doing work "directly associated" with the transmission and distribution of electricity.

"Basically, what we did was submit written testimony," says N.A.A. executive vice-president Robert Felix. "We made them recognize the fact that a qualified tree worker can work around electrical conductors. Their regulation had included utility tree workers only."

Also, the proposal would have made it possible for different members of a crew to be regulated by different OSHA rules on the same day, or whole crews being subject to one OSHA rule on one job and a different OSHA rule on another.

Under cross-examination by attorney Steven R. Semler, OSHA clarified the points of contention, conceding on the record to each of the concerns that had been presented in the NAA's testimony.

Testimony came from NAA members Gerald Duke, Walter Money and Erik Haupt.

CONFERENCES

Expo seminars are comprehensive

The third annual Landscape Exposition, to be held Oct. 22-24 at the Nashville (Tenn.) Convention Center offers attendees a comprehensive seminar program.

The Landscape Exposition seminars, taught by recognized industry authorities and educators, deal with topics from regulatory issues to management strategies to the most recent technical developments. Titles include:

- Weed management in cen

continued on page 14

ALL IN A DAY'S WORK... Edgell Communications takes pride in its Cleveland, Ohio, landscape. When the summer drought hit, the grass turned brown in spots, despite irrigation. The situation had Ken Erman and Tom Sprague—like many other landscape managers this year—scratching their heads. However, in late July when rains finally came, the grass finally greened up. One employee, tongue in cheek, asked the pair how they magically brought the turf "back to life." Their answer? "Tricks of the trade," said Sprague. "We prayed a lot," noted Erman.

A DRY IDEA..... Elsewhere in Cleveland, companies were doing special promotions this summer. For instance, if you were the fifth caller to respond to a WGAR-AM radio contest, you won a much-needed yard watering courtesy of the Brunswick branch of ChemLawn. Twice a week the company applied 400 gallons of water on the parched lawns of three listeners as part of the station's "Hoser Patrol" promotion. "I chuckled a bit when they first mentioned the idea, but here we are doing it," said ChemLawn branch manager Jeff Vorndron, who was joined by a station disc jockey to conduct live broadcasts from each site.

JUMBO PLUGS... That's what you get with extra-large hollow coring tines, according to *Parks & Sports Grounds* magazine of London, England. The tines have been satisfactorily tested, the magazine says. The reasons for pulling larger plugs are to (1) allow more effective use of topdressings and (2) remove more thatch.

SAME PRODUCT, NEW NAME... Geomatrix Systems, formerly part of the BASF Fibers Division, has a new name—Akzo Industrial Systems Co.—since being purchased from BASF in May. The company manufactures Enkamat and Armater Geomatrix for erosion control and Enkadrain subsurface drainage matting. Questions regarding Akzo products can be directed to the company at P.O. Box 7249, Asheville, NC 28802; (704) 258-5050.

NO WAY OUT...is what prison officials at an Ohio minimum security prison in Mansfield wanted when they asked David Burroff what type of grass they should plant in and around the facility. Burroff, owner of Exterior Design, Inc., Fort Wayne, Ind., put in a mix of 60 percent Nugget Kentucky bluegrass, 20 percent white clover and 20 percent annual ryegrass. Since the grass outside is mowed only twice a year, officials wanted a turf that wouldn't grow too high and consequently offer an escaped prisoner a place to hide. "There's good logic in that thinking," said Burroff, "but I don't think they'll be able to get out anyway."

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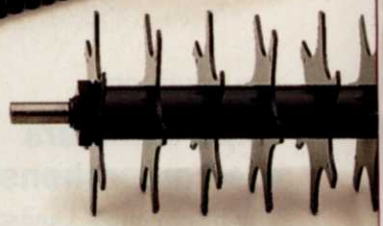

The Toro 450-D gives you protection against hydraulic fluid leaks. Wherever possible, hoses have been replaced with strong steel lines and O-ring seals protect connections. A hydraulic warning system flashes an alarm when the fluid level drops. For easy servicing, test ports for the hydraulic system are right on the side of the machine.

The Reelmaster 450-D can be customized with these accessories: ROPS, Cab, 5- and 7-bladed reels, rollers and thatching reels.

The Toro Company, Commercial Marketing Services, 8111 Lyndale Ave. So., Minneapolis, MN 55420.

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The 450-D is designed with its weight evenly distributed around a center-mount 50 hp engine for better balance. This means more uphill climbing ability than other machines and better traction.

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Circle No. 142 on Reader Inquiry Card

NEWS/TRENDS

by the Editorial Staff

Changing public images

■ Golf course superintendents have a bit of a recognition problem, says Gary Mazzeo of the Grantwood Recreation Park in Solon, Ohio. "Superintendents are recognized as greenskeepers or not at all," he comments. "It's a struggle for recognition."

While entertaining, Bill Murray's portrayal of Carl Spagler in the movie "Caddyshack" did little to improve the reputation of most superintendents.

Improving the perception at the high school level is a start, Mazzeo says. He suggests superintendents speak at local career days. Also, he believes supers should offer their expertise to area high schools to improve athletic field conditions. "Superintendents can help cut down injuries and get recognition in the community," he explains.

Mazzeo also stresses the importance of public course supers participating in local superintendents' associations. He feels that public courses are not as well represented at these associations.

AMA reports on pesticides

■ Although studies show many chemicals used in pesticides can cause genetic damage or cancer in animals, only two have been proven to cause cancer in humans, says a recent report in the *Journal of the American Medical Association*.

Except for arsenic and vinyl chloride, there is a great uncertainty about the human cancer-causing potential of hundreds of other pesticidal agents, says the report. Animal and in vitro tests are not reliably predictive of human carcinogenicity, and epidemiological studies often fall short of establishing definite links between chemical exposure and cancer in humans, it says.

The report also notes: "The decision whether to regulate a suspected carcinogen is not uniformly applied by all federal agencies concerned, (but) agencies have been fairly consistent in regulating a substance when it is expected to cause an increase of more than four cases of cancer per 1,000 persons; no regulation is likely if the expected increase is less than one in a million."

Of days to come

■ Jerry Stumbras of Lawn-Boy believes that the commercial segment of the outdoor power equipment industry will grow, despite this summer's drought conditions. Stumbras said at the Outdoor Power Equipment Institute's annual board meeting that he expects more consolidations among mower companies and more foreign competition.

John Munn of Wheel Horse, commented at the OPEI meeting that there would be significant component increases being passed on to equipment manufacturers this year. Equipment costs could go up five to 10 percent, perhaps higher.

EXPO *from page 11*

tipedegrass and St. Augustinegrass

- Programming problems in automatic lawn irrigation
- The basics of success
- Recruiting employees for long-term retention
- Why and when to use incentive plans
- Low-cost versus specialty fertilizers
- Developing a marketing plan
- Turf establishment and renovation

Conference fees are $60 per person per day; attendees may save $30 by registering for all three days. Complimentary exhibits admission is extended to all conference participants. For more information on either attending or exhibiting at the Landscape Expo, call Becky Lerew or Mary Sue Christoffers at (800) 243-2815. In Connecticut, call (203) 853-0400.

GOLF

Privately-owned public courses slate 7th show

The Golf Course Association, an association for privately-owned public golf courses, will hold its seventh annual conference in Naples, Fla.

The conference will be held at the Registry Resort Hotel Jan. 10-14, 1989. Its theme will be "Put Your Pieces Together," concentrating on customers, employees, family and self.

Highlights include a moonlight cruise dinner in the Gulf of Mexico, a seminar on employee relations conducted by Bill Stevens, roundtable discussions and the Award of Merit Banquet.

For more information, call the GCA at (612) 854-8482 or write to 8030 Cedar Ave., Suite 228, Minneapolis, MN 55425.

CONFERENCES

Short Course slated for early next year

The University of California has scheduled its annual "Short Course in Horticulture" for Jan. 24 to Feb. 23, 1989. The 1989 Short Course offers research-based information on practical aspects of horticulture production, landscape management and problem diagnosis. It is co-sponsored by the California Association of Nurserymen and the Southern California Gardener's Federation.

Sessions will be held in Los Angeles, Orange and San Bernardino counties. However, no cross-overs are allowed and each registrant must choose only one location. Cost is $25.

continued on page 18

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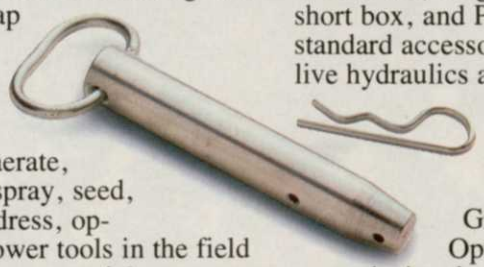

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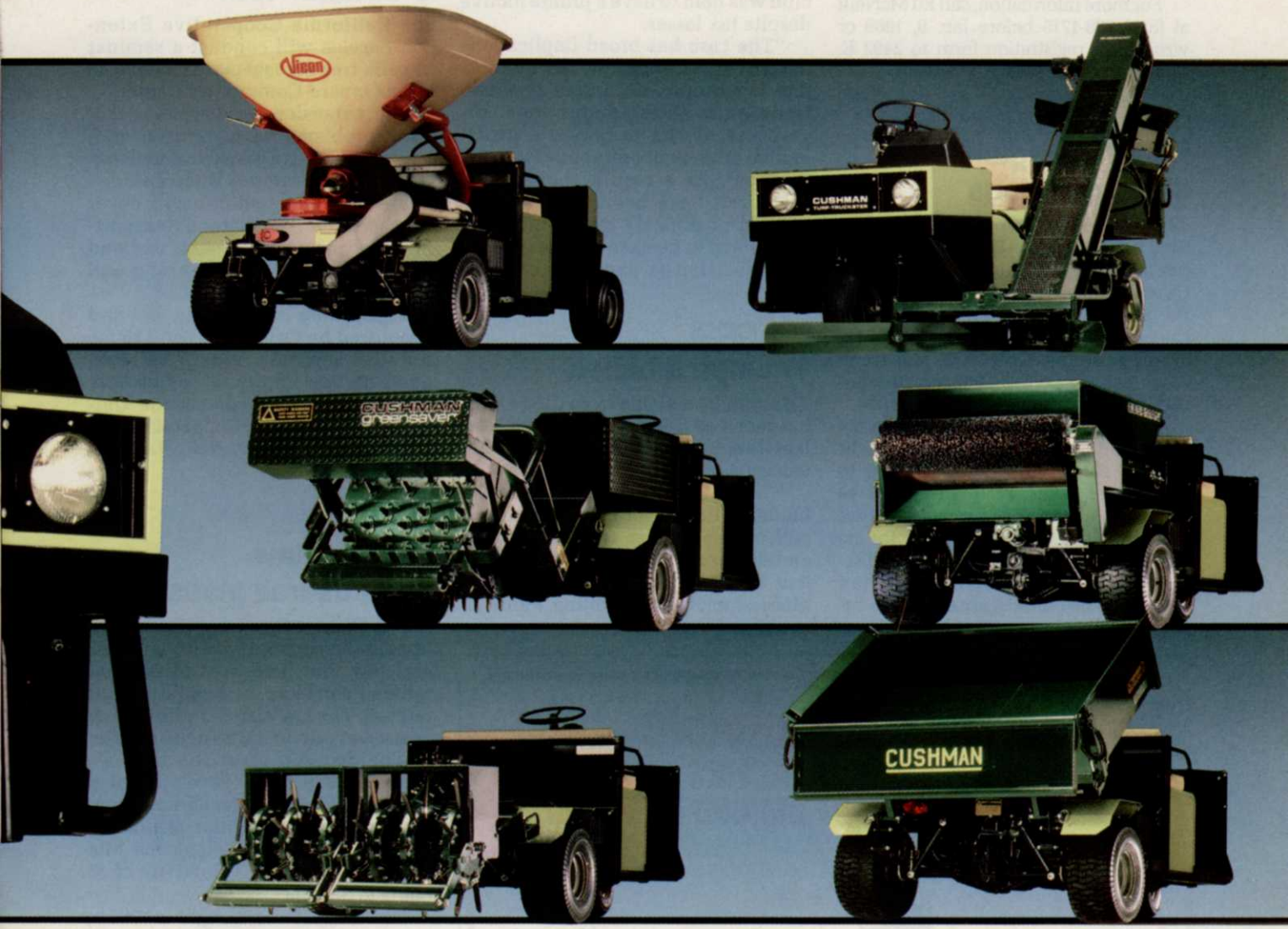

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A lesser turf vehicle simply won't do if you're tackling tough turf maintenance jobs thousands of hours a year, year in and year out.

For more information or a free demonstration of what the Cushman Turf-Truckster can do for you, contact the Cushman dealer nearest you today. Or call toll-free: 1-800-228-4444.

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Circle No. 106 on Reader Inquiry Card

Certificates will be awarded at the completion of the fifth session. To be eligible for a certificate, at least four sessions must be attended.

For more information, call Ed McNeill at (818) 798-1715 before Jan. 9, 1989 or write for a registration form to 2492 E. Mountain St., Pasadena, CA 91104.

GOLF

NCA files against IRS regulations

The National Club Association has filed a brief in the U.S. Court of Appeals in San Francisco asking the Court to approve the recent opinion of the U.S. Tax Court for *North Ridge Country Club v. Commissioner of Internal Revenue*. The NCA is a trade association serving 1000 private social, athletic and recreational clubs.

This action represents NCA's latest effort in its nine-year struggle to fight the IRS campaign requiring clubs to pay higher taxes. In this case, all 14 members of the Tax Court held that the club had a profit motive for its non-member business. This determination would provide that tax losses can be offset against taxable investment income on such activities.

"The case is unique and important," says NCA executive vice-president Gerard F. Hurley. "The lower court opinion is the first in which a club was held to have a profite motive despite tax losses.

"The case has broad implications in many areas. Today the IRS requires that continuous tax losses preclude trade or business deductions, regardless of the taxpayer's profit motive or the economic benefits to the taxpayer. As a result, these interpretations have been a convenient method of unfairly extracting what we believe to be excessive taxes."

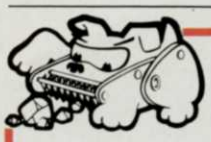
A decision is expected early in 1989.

PESTICIDES

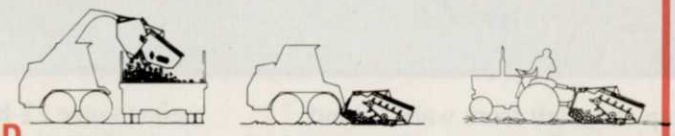
Triumph labelled

Triumph insecticide from Ciba-Geigy has received Special Local Need (24c) labelling by the Environmental Protection Agency for use in eight states.

The states where the new insecticide is allowed for insect control on golf course greens, tees and aprons and sod farms are: Alabama, Connecticut, Illinois, Indiana, Iowa, Michigan, Mississippi, North Carolina, Pennsylvania and Virginia.



ROCKHOUND
TEACHES
THE ABC'S OF GROUND PREPARATION



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Circle No. 123 on Reader Inquiry Card

CONFERENCES

Palm tree seminar is October 19th

The California Cooperative Extension Service will conduct a seminar on palm tree management October 19 at the Oxnard Community Center.

The extension service notes that many problems have occured with palms, which have grown in popularity in exterior and interior landscapes.

The one-day seminar will cover plant selection, moving and transporting large palms, date palm use and care, palms in interiorscaping and palm tree diseases.

Registration is limited to 500, and is required by October 1. The $25 fee includes seminar, lunch, refreshments and certificate of completion.

For information, contact the University of California, Cooperative Extension, 800 S. Victory Ave., Ventura, CA 93009.

RIGHTS OF WAY

Missouri law upholds trail plans

A U.S. District Court in Missouri has upheld the constitutionality of a federal law that preserves abandoned railroad corridors for possible future rail use. The law also permits them to be used as public trails in the interim.

The decision gives the state the green light to begin development of what could become the nation's longest and most spectacular rail-trail, a 200-mile route route along the Missouri River from the outskirts of St. Louis to Sedalia.

The lawsuit was brought in 1986 by a group of farmers who lived near the line and who claimed the corridor reverted to them when rail service ended. However, Judge George F. Gunn, Jr., upheld the rails-to-trails law, stating the "Congress acted rationally in enacting the law by electing to postpone railroad abandonments and to encourage interim trail use so as to further its railbanking purpose."

MANAGEMENT

Productivity relies on a happy employee

Recognizing the signs of growing distaste for a job will help to head off potential problems with an employee or even the boss down the road.

According to Doug Swenson, a Dale Carnegie lecturer, the employee goes through four phases of attitude: excitement, frustration,

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Circle No. 138 on Reader Inquiry Card

looking and recommitment.

The first stage usually lasts the first three to six months of a new job, that excitement of a new challenge, new goals. "This excitement will carry the employee through adversity," Swenson says.

The second phase, frustration, has six sub-phases: shock at finding the job isn't going to be so easy or perfect; denial that the problem lies within; fear of total failure; outward anger; justification of what is happening with the job; and finally acceptance of the circumstances and a lowering of goals.

What results from this frustration stage, if it is not headed off, is the looking phase: for a new job, a search for that excitement.

Swenson says that the excitement period decreases in duration for each new job. He calls this the negative cycle. A new job won't make things better for any length of time.

But he adds that the negative cycle can be prevented by recognizing the signs of the anger sub-phase. "Recognize the anger stage and go straight to the fourth phase from there," Swenson advises.

The recommitment phase involves three stages, beginning with a re-evaluation of why you took the job in the first place. After that, set some immediate goals that will inject some excitement and boost confidence quickly. Finally, get an outside opinion on whether you are right for the job or the job is right for you, and if you can do the job well. Often, the outside opinion is a key factor. The boss or a fellow employee can provide that opinion.

"Going through the positive cycle extends the excitement period each time," Swenson says. If an employee is showing this anger, sit him or her down and talk it out. It may save time and money down the road.

Swenson spoke at the third North Central Turf Grass Association conference in Bismark, N.D..

GOLF

Consistent topdressing improves performance

Keeping the same topdressing media over a period of years will improve the performance of topdressing and reduce or avoid other problems, notes Jim Snow, director of the Northeast region of the USGA Green Section.

The most serious potential problem is the chance of layering. When particle size or media is changed, and changed often, layering is nearly a given. "Fine particles on top of coarse ones cause a perched water table," Snow says. "Keep the same particle size and blend."

Snow outlined benefits and concerns of sand topdressing in relation to high sand mixes and soil. Compared with high sand mixes, straight sand is easier to apply when wet, more readily available and costs less, Snow says.

He also brought up some concerns with sand as compared with soil in addition to layering. Sand has lower microbial action, which helps to break down thatch. Greens can become hydrophobic because of sand's high percolation rate, and greens can lose color rapidly after fertilizer applications. Spike and ball marks last longer and bedknife wear increases.

Most often, Snow explains, topdressing fails because the wrong size particle or too much sand is used. Also, when greens aren't aerated, the layering problem compounds. Snow says to aerate at least twice annually. Adjust other management programs along with aeration, he says. He recommends light and frequent topdressing applications and more frequent but light fertilizer applications with more phosphorous and potassium.

When choosing a sand topdressing, Snow says to consider physical properties such as particle size and thus porosity and infiltration rate, bulk density and water retention.

Snow spoke at the GCSAA Conference in Houston. **LM**

EVENTS

OCTOBER

9-12: Florida Turfgrass annual conference and show, Tampa, Fla. Contact: FTA, 302 S. Graham Ave., Orlando, FL 32803; (407) 898-6721.

10-12: Western Agricultural Chemicals Association annual meeting, Harvey's Resort Hotel/Casino, Stateline, Nev. Contact: Debra J. Rein, 930 G St., Suite 210, Sacramento, CA 95814; (916) 446-9222.

11-13: National Roadside Vegetation Management Association conference, Texas Hilton, Dallas, Tex. Contact: Turney Hernandez, NRVMA, 309 Center Hill Rd., Centerville, DE 19807; (302) 655-9993.

13-14: Texas Xeriscape Conference, College Station (Tex.) Hilton Hotel. Contact: Douglas Welsh, 225 Horticulture/Forestry Bldg., College Station, TX 77843; (409) 845-7341.

14-15: Sunbelt Horticultural Trade Show, Albuquerque (N.M.) Convention Center. Contact: Linda McLain, P.O. Box 667, Estancia, NM 87016; (505) 384-2726.

14-23: Los Angeles Garden Show, Los Angeles State and County Arboretum, Arcadia, Calif. Contact: John Provine, L.A. Arboretum, 301 N. Baldwin Ave., Arcadia, CA 91006; (818) 446-8251.

16-19: Society of Municipal Arborists annual meeting and trade show, Omni International Hotel, Detroit, Mich. Contact: Dale Gaasland, R.R. 3, Box 614, Williston, ND 58801; (701) 774-0485.

17-19: Southwest Turfgrass Conference, El Paso (Tex.) Civic Center. Contact: Charles Glover, NMSU, P.O. Box 3-Q, Las Cruces, NM 88003.

19: Palm Tree Management seminar, Oxnard (Calif.) Community Center. Contact: Jim Downer, UC Cooperative Extension, 80 S. Victoria Ave., Ventura, CA 93009; (805) 654-2924.

22-24: Landscape Exposition, Nashville (Tenn.) Convention Center. Contact: Becky Lerew, 50 Washington St., P.O. Box 5555, Norwalk, CT 06854; (203) 853-0400.

25: Perennials for the Landscape and Garden Center Industries symposium, Scott Arboretum, Swarthmore, Pa. Contact: Pennsylvania Horticultural Center, 325 Walnut St., Philadelphia, PA 19106; (215) 625-8299.

25-27: Florida Aquatic Plant Management Society annual meeting, Holiday Inn Surfside, Daytona Beach, Fla. Contact: Bill Moore, FAPMS, 210 Valencia Shores Dr., Winter Garden, FL 32787; (305) 656-5838.

26-28: Atlantic Seedsmen's Association annual convention, National Clarion Hotel, Arlington, Va. Contact: Dr. John E. Baylor, 298 E. McCormack Ave., State College, PA 16801; (814) 237-0330.

27: Planting and Maintaining Landscape Trees and Turf in the San Bernardino Valley, San Bernardino, Calif. Contact: Roberta Bybee, 777 E. Rialto Ave., San Bernardino, CA 92415.

27-28: Colorado Xeriscape '88, Denver (Colo.) Airport Hilton Hotel. Contact: Pat Miller, National Xeriscape Council, 940 E. 51st St., Austin, TX 78751; (512) 454-8626.

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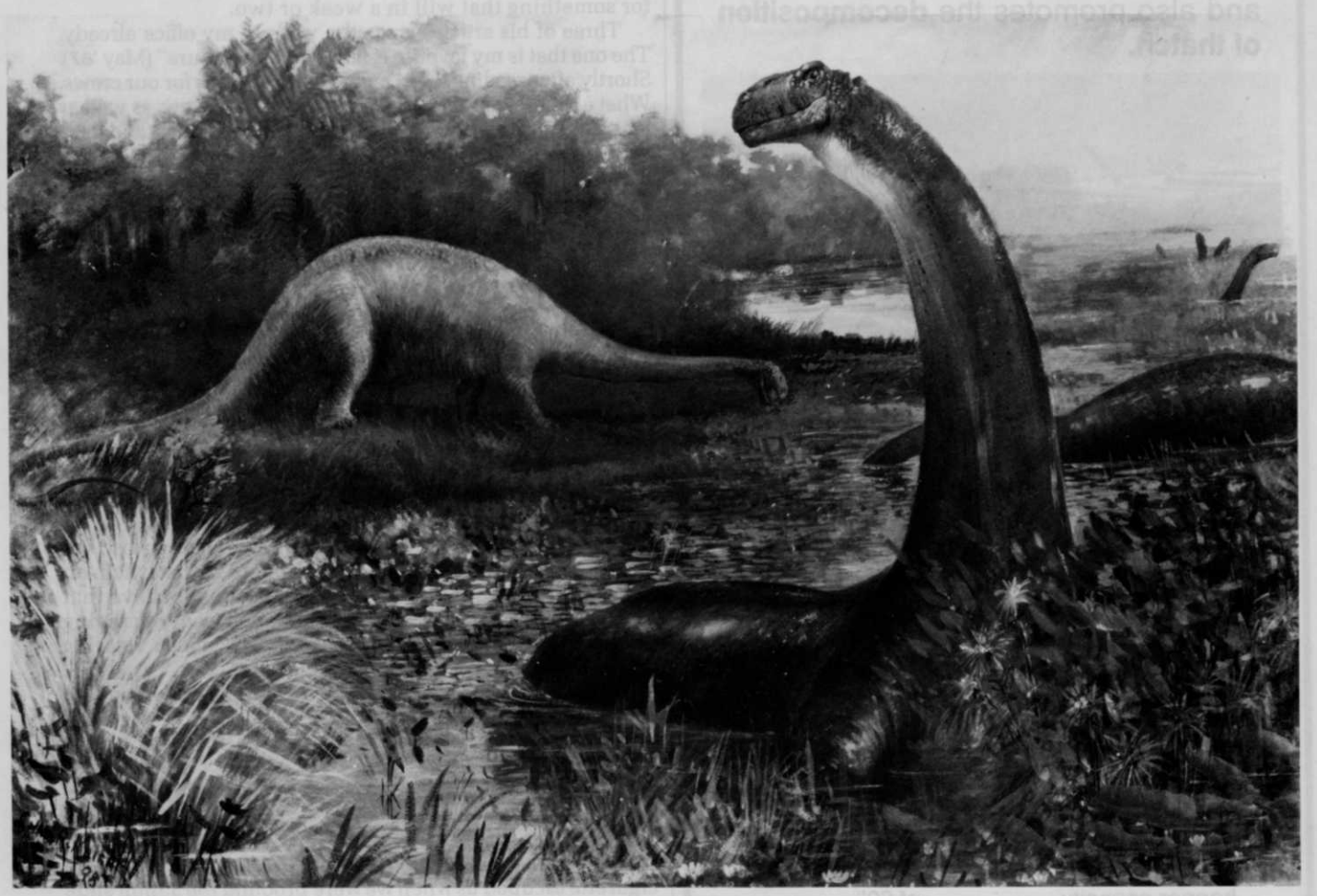

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Not when Komatsu gives you more dozer for your money. And that beats getting more dozer than you need for things like site preparation, landscaping and slope work.

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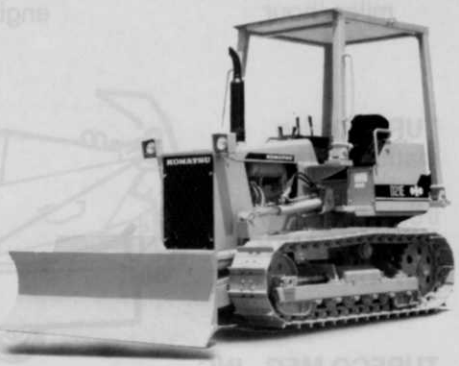
So, for your own good–and productivity, call 1-800-627-1700 or your nearest Komatsu distributor about the Komatsu D21E dozer.



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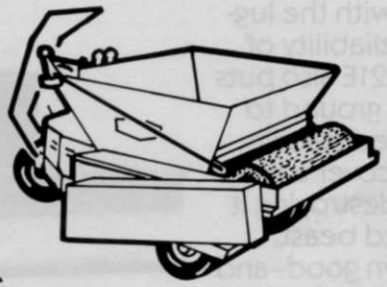

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TURFCO

Circle No. 140 on Reader Inquiry Card

LETTERS

To the editor:

I'm writing this letter to let you know how much I enjoy your magazine and Jerry Roche's "Outlook" article. His section is the first one I turn to when I get my magazine. I guess you could call him the "Dear Abby" of turf management. It seems his articles always hit home or prepare me for something that will in a week or two.

Three of his articles grace the walls of my office already. The one that is my favorite is "Dressing for Failure" (May '87). Shortly after reading this, I purchased uniforms for our crews. What a difference! The pride in our company grew, as well as job pride. We proudly display our colors on every job, and have gotten many compliments—not to mention work—from them.

I hope my competition missed that issue; I enjoy having that little extra edge. Keep up the good work! Who knows—maybe I won't have to redecorate my office after all!

Lori Flanagan
Yard Care
Hugo, Minn.

You can start looking for "Outlook" on page 4 from now on, under the new title "As I See It."—ED.

To the editor:

I have just received the June 1988 edition of LANDSCAPE MANAGEMENT. I was appalled at the photo in the article on legislation and aquatic weed control. I cannot believe that you printed this photo. The man is supposedly spraying pesticides while smoking a cigarette. He is also wearing leather gloves and no protective clothing.

I plan to use this photo as a good example of what not to do while spraying pesticides.

Glen R. Foth
Kings View Center
Reedley, Calif.

You're absolutely right, Mr. Foth. Unfortunately, the cigarette escaped us when we were proofing the 35mm slide for publication. It wasn't until the magazine mailed and we saw the photo enlarged that we caught it—too late.—ED.

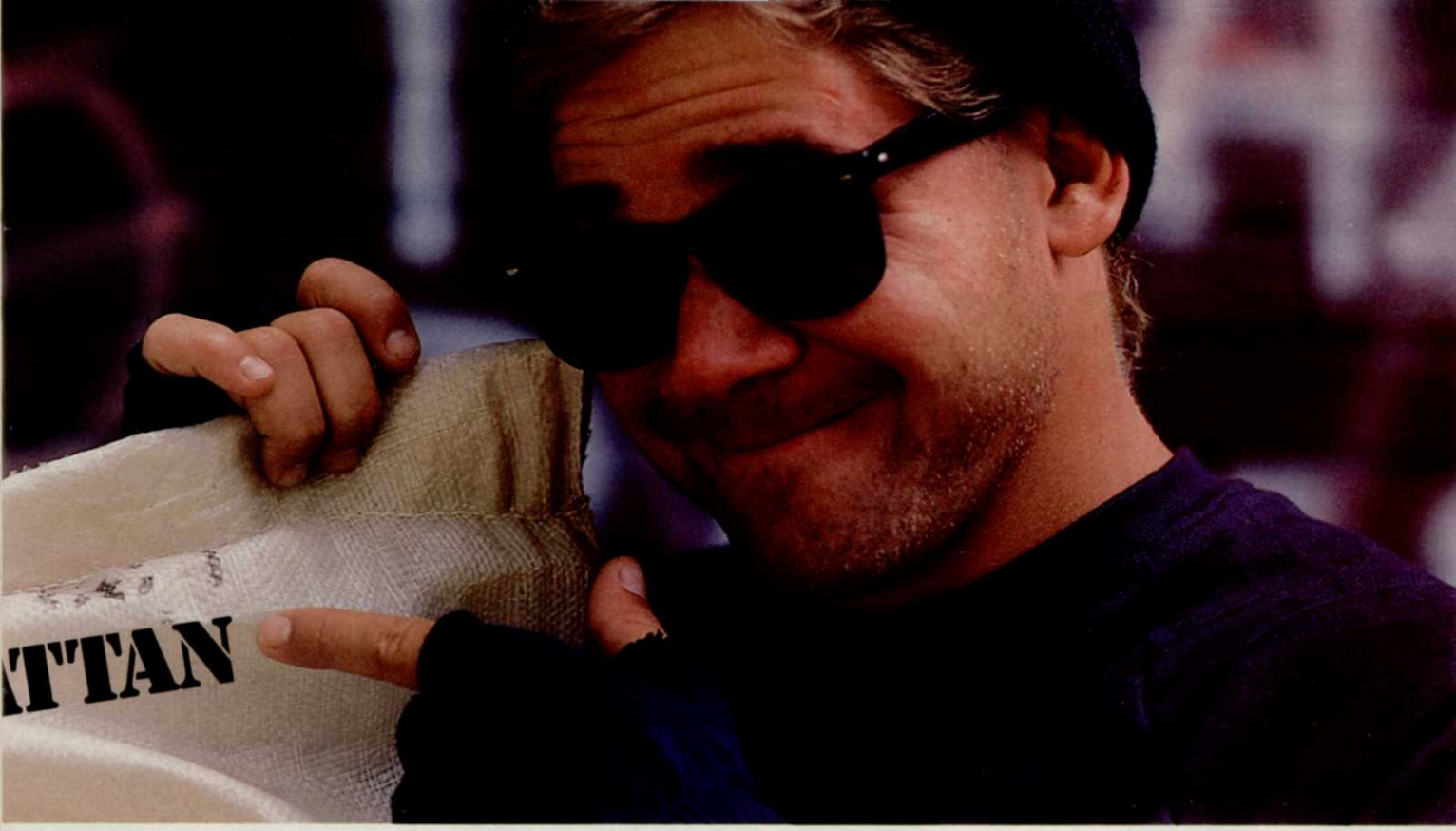
To the editor:

I have received your magazine for the past four years and have been very well pleased with its content. However, I must relay my disappointment with the June 1988 issue. The cover indicates the issue will deal with aeration, but there is only one small article devoted to the subject. I was expecting a series of articles on different types of aerators, new aerators, the history of mechanical aeration, etc. Instead, all I found was some discussion about the lower cost of "home aerators" with no discussions of their use or who manufactures them.

As I mentioned at the beginning of this letter, I have enjoyed LANDSCAPE MANAGEMENT in the past and will continue to look forward to future issues. Please try to "back up" your covers in the future.

Bobby Sterrett
Dir. Parks & Recreation
White Settlement, Tex.

Look for more on aeration in our January 1989 issue.—ED.



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Manhattan Ryegrass Growers Association has the exclusive contract to produce Manhattan and Manhattan II perennial Ryegrasses. These select seed growers have not produced the old Manhattan strain for years, so much of what is being produced as Manhattan is probably not true Manhattan.

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So what is their stuff? We *know* it bypasses seed certification and royalty programs. And, because it's not certified, we have no way of knowing just what's in the bag.

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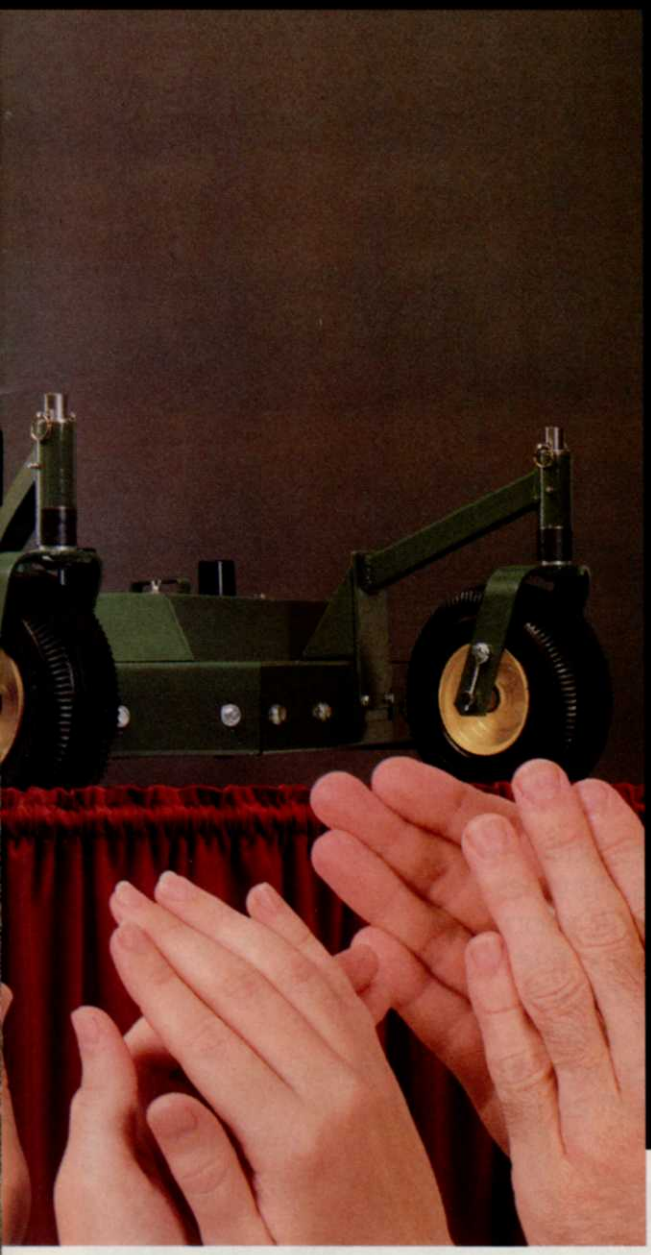

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Circle No. 104 on Reader Inquiry Card

PEOPLE

Jacklin Seed Co. has announced the addition of **Patti Curry, Ph.D.** and **Joe Dunfield** to its research department in Post Falls, Idaho.

Curry received her B.S. degree in range science from Texas A&M University, her M.S. in agriculture from East Texas State University and her Ph.D. in crop science with an emphasis on plant breeding and cytogenetics

Joe Dunfield

Patti Curry Ph.D.

from Oklahoma State University. Dunfield, who received a B.S. degree in agronomy from Oklahoma State, studied and trained under Doug Brede, Ph.D., Jacklin's current research director.

Jim Fetter of O.M. Scott & Sons has been promoted to director of marketing. Fetter, a graduate of Ohio University, was formerly Scotts' marketing manager of professional products.

Michael Kelty

Michael Dingman

Also, **Michael Kelty** has been named director of Scotts research and development. He joined O.M. Scott in 1979 as regulatory environmental specialist and since 1987 has been director of chemical technology.

Rod Strickland is the new national sales manager at Elanco Products Co., a division of Eli Lilly Inc.

Sandra L. Burns has been named assistant manager, video and communications for the Davey Tree Expert Co. She will be responsible for video and audio program development and distribution, speaker support equipment and various employee activities.

Todd H. Lauble is this year's recipient of the Seed Research of Oregon $500 scholarship. He is a student at Oregon State University, majoring in horticulture and turfgrass management.

The new vice president of facilities and equipment for Environmental Industries, Inc., is **Michael L. Dingman**,

Todd Lauble

Sandra Burn

who was supervisor of new building projects for the company.

Ed Davis, owner and operator of R&D Sod Farms became the 18th president of the American Sod Producers Association. He will be joined by new vice president **Randy Tischer** of Green Velvet Sod Farms.

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Olathe Chippers reduce bulk — cuts down time to landfill sites. Provides mulch for safety and beautification progams. Olathe manufactures five models to handle your chores — from 8 hp 2½" capacity to 100 hp 12" diam. capacity. With units in the field for over 15 years, Olathe keeps proving itself as a leader in the chipper field.

Model 12 — PTO, 3 pt. hitch or tow-type, 7" capacity, 500 lb. drum.

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A Safe and Effective Insecticide.

It's Effective. Grower and university trials have shown that Safer™ Insecticide Concentrate kills a broad spectrum of insects. It's effective on aphids, mites, leafhoppers, scales, and whiteflies that affect plants, vegetables, trees, and fruits. Made from naturally occurring fatty acids, Safer™ kills pests fast, on contact, by penetrating cell membranes. Yet it spares many beneficials. And it eliminates the problem of resistance buildup, too.

It's Safe. In addition to use during the growing season, Safer™ Insecticide Concentrate can be used as a pre-harvest clean-up spray. It's safe for workers to re-enter as soon as the spray is dry.

Workers can mix, handle, and apply Safer™ without undue concern about exposure. Neither special equipment nor special safety gear is required. And Safer™ Insecticide Concentrate won't contaminate soil or ground water because it's biodegradable.

It's Easy to Use. Safer™ fits in with most production practices. It can be used by itself as part of an integrated pest management system. Or, it can be tank mixed with other chemicals at reduced rates to broaden the spectrum of insect control yet achieve the same effectiveness.

Get a Free Sample. Judge for yourself just how effective this new, natural insecticide really is. Fill out and return the coupon and Safer™ will send you a free sample, a user's guide, and complete information including field trials. This offer expires April 30, 1989. Limit one sample per customer. Or see nearest dealer for special cash rebate offer.

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I have completed the simple survey questions below. Now send me my FREE sample of Safer™ Insecticide Concentrate along with a user's guide and field trial data.

Your Name: _____

Operation Name: _____

Address: _____

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Phone: (_____) _____

Type of operation (fruits, vegetables, trees, or plants grown) _____

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Number of acres: _____ Who supplies your chemicals? _____

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For additional information about this offer or about Safer™ natural insecticides, call toll-free: 1-800-423-7544.

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Circle No. 276 on Reader Inquiry Card

COVER STORY

Ford's 1520, at 19.5 hp, is in the middle of the company's compact tractor power range. It can utilize more than 50 implements and attachments.

COMPACT TRACTORS ENHANCE FLEXIBILITY

Utility vehicles with selected attachments offer a more versatile machine you can use throughout the entire year.

by Ken Moehle

Selecting the right mix of multi-purpose and single-purpose machines is an important decision for a landscape manager. For peak seasonal tasks, some single-purpose machines play an important role—especially in larger fleets. But to add versatility and extend year-round equipment use, utility tractors with selected attachments are a prime choice.

Compact utility tractors of 18 to 35 horsepower, when teamed with the wide range of available attachments, offer the versatility and dependability needed for many landscape maintenance tasks. Attachments to compact tractors are: standard category I three-point-hitch, remote hydraulic circuits and power takeoff units (PTOs). Of course, before choosing a combination of compact tractor and attachment, first check with the tractor dealer or manufacturer. They can advise whether or not the proposed application is safe and effective, or if the attachment is approved for use with the tractor.

Many of these attachments allow compact tractors to use their power and compact size to help with light construction, excavating and site preparation in tight quarters. For example:

- three-point-hitch-mounted blades, box scrapers, scarifiers, rock rakes and seedbed preparation implements for clean-up and finish grading;
- hitch-mounted, PTO-powered roto-tillers for one-step preparation before reseeding lawns or planting floral displays;
- front-end loaders for loading, dozing and lifting; and
- hitch-mounted, PTO- or hydraulic-powered compact backhoes for servicing utilities, installing footings and other excavation work in close quarters.

Other attachments which make compact tractors efficient power sources for tree service and forestry:

- hitch-mounted tree planters for reforestation, windbreak and hedgerow plantings;
- PTO-powered, mounted or pull-type wood chippers for easy disposing or recycling tree trimmings and storm debris;
- PTO-powered sprayers with the capacity to reach tall trees; and
- PTO-powered mounted or pull-type log splitters and bucking saws to economically convert surplus trees and large limbs into marketable firewood.

As compact tractors have grown in popularity, the list of attachments continues to expand compact tractor uses:

- hydraulic- or PTO-powered implements sized for compact tractors, including manure spreaders, dump trailers and lawn sweepers;
- post hole diggers, for fence building and tree planting;
- mounted, PTO-driven cement mixers, for sites inaccessible to trucks and towed mixers;
- PTO-powered air blowers for

Ken Moehle is a product manager with Tractors Case IH, Racine, Wisc.

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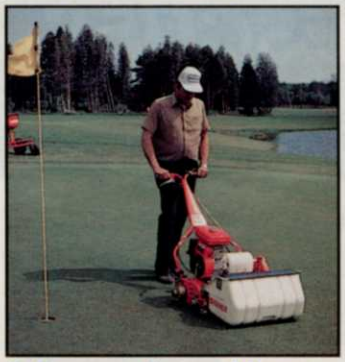

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sweeping light snow, trash or leaves; pesticide and fertilizer sprayers and spreaders for covering large areas;

● three-point-hitch or front-mounted forklifts or hoists for materials handling;

● and sickle-bar mowers for safe and efficient clipping of weedy plots with debris and rough terrain.

With their built-in ability to handle heavy loads and adverse weather and ground conditions, compact tractors can use their maneuverability to provide excellent grass cutting performance, from the finest finishing cuts to thick, heavy weed cutting.

Additionally, these tractors offer the following benefits:

● ample drawbar pull and traction to operate high-capacity grass clippings collectors;

● built-in strength, weight and rigidity for excellent mowing performance on rolling, damp or soft ground;

● and when versatility is a key criteria, a single compact tractor can serve as the power unit for both heavy-duty mowers and fine-cut finishing mowers.

Modern mower design recognizes the need for versatility. For example, front-end loaders and mid-mount mowers are designed to be mounted simultaneously. One tractor can be constantly ready for high-capacity mowing and diverse loading, grading and lifting applications.

One tractor can be constantly ready for high-capacity mowing and diverse loading, grading and lifting applications.

Snow removal is a fact of life for landscape supervisors in much of North America. This is one operation in which the power, durability and ability to be unaffected by harsh conditions make compact tractors an outstanding value. Workers' productivity can be increased and exposure to harsh weather decreased by using compact tractors to provide faster, more efficient snow removal. Compact tractors equipped with long-lasting, ruggedly constructed, front-mounted blades quickly remove snow from streets and parking lots. They have the reserve horsepower and hydraulic capacity to operate rotary brooms for clean-sweep snow removal from sidewalks and pedestrian plazas. They are also designed with demanding PTO applications in mind such as snow thrower operations to remove deep, heavy snowfalls or to clear the way for future snow plowing or sweeping.

Multiple transmission gear selections further enhance PTO operation by providing slow travel speeds at full horsepower engine RPMs. And inexpensive weather brakes direct engine heat toward the operator or fully enclosed cabs increase operator comfort and productivity in the coldest weather.

In many turf care operations, compact tractors can be a very productive and economical capital investment. In larger fleets, they can extend the versatility of utility tractors to more workers, in a machine size that is economical to purchase and operate. For other operations, they bring the power and versatility of utility tractors to situations that do not require the power and size of a mid-sized utility tractor. **LM**

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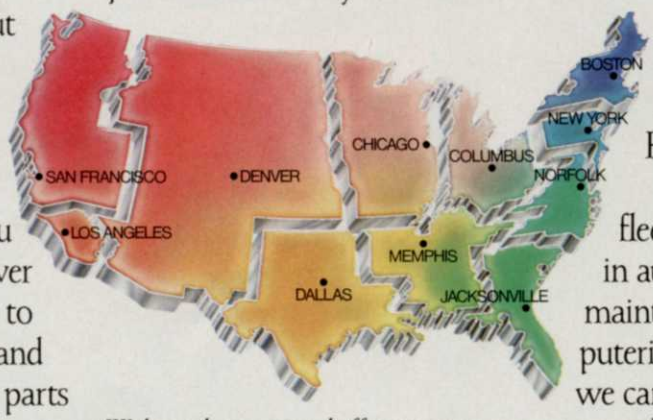

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SO DEM

Seed harvests are up fr demand will keep sup existent,

by Jeff Sobul, and

To use Frank Sinatra's words: it was a very good year.

The grass seed harvest of 1988 will be remembered as one in which everything went like clockwork—a bit late, but nonetheless like clockwork. Almost all yields were higher than 1987, especially those of perennial ryegrass.

"We're expecting to have enough seed to meet early-anticipated demand," says Kent Wiley of Pickseed West—emphasis on "early."

Which means that, if you're reading this report now and are still thinking about buying seed, you might have to leave it at just thinking. Because there probably won't be any seed to buy.

The green industry is just too demanding. "We're going to have our biggest year ever," says Tom Stanley of Turf Seed, "but it's still not going to meet demand."

Notes Wiley: "There is increased cleaning capacity and new warehousing in the valley as seed growers respond to increasing customer needs." Pickseed itself has increased its facility by 10,000 sq. ft. and added a new loading area. Also, new processing equipment from Germany is boosting Jacklin Seed's already massive and efficient facility.

"The demand for bluegrass is up tremendously," notes a befuddled Gayle Jacklin-Ward of Jacklin Seed, the largest marketer of bluegrasses in the world. "I don't know where it's going."

"It's been a fairly good harvest," says Rich Underwood of International Seeds, "but it won't be able to take care of the demand. We expect a basic tightness on most

Despite a good harvest, distributors anticipate having trouble meeting demand this year. As a result, 10 to 15 percent price increases are expected.

ANDING

om 1987. But escalating
plies short, if not non-
into 1989.

Jerry Roche, editor

turfgrasses, with higher prices."

A number of factors continue to drive up demand for grass seed, both proprietary and common. The one that's been in the news everywhere is of course, the Great Drought of 1988, which hit the grass-rich Midwest especially hard.

Lawn care operators may have been hit hard from the drought during the summer, but many of them will make up lost business through lawn renovations this fall (or next spring, if the seed isn't available yet). This should account for added pressure for blues, ryes and tall fescues, among others.

All-purpose turf

Especially tall fescues. Their drought tolerant reputation has boosted popularity greatly. Tall fescue demand is also up, say several sources, because it is adapting well to climates further north than ever before. As far north as Canada, in some cases. Use is even spreading to golf course roughs in some locations, notes Pickseed's Wiley.

According to Steve Tubbs of Turf Merchants, demand for the perennial ryes has increased as well, so the seed growers have responded by planting upwards of 90,000 acres of it, compared with 50,000 acres just two years ago.

"There are some good yields of perennial ryegrasses," Wiley adds. "Overall, they're up 10 to 15 percent." Pickseed added improved varieties of three popular ryegrasses to help meet the demand this year: Fiesta II, Blazer II and Dasher II.

Bluegrasses

Kenny Rogers' gambler just wants to break even "when the day is done." Seed growers and marketers are gamblers, and it seems that the bluegrass gamblers broke even this year.

GRASS SEED AVAILABILITY CHART

Availability Key: **A**-surplus **B**-adequate **C**-limited **T**-testing only **S**-sold out

VARIETY	MARKETER	AVAILABILTY	VARIETY	MARKETER	AVAILABILTY
Bentgrass (Creeping unless otherwise noted.)					
Cobra	International	B	Pennlinks	Tee-2-Green	C
Emerald	International	B	Pennway	Tee-2-Green	C
Exeter	Colonial	C	Providence	Seed Research	C
	Pickseed		Putter	Jacklin	T
Kesk Oy	Daehnfeldt		SR-1020	Seed Research	B
	Export		Southshore	Lofts	T
Kingstown	Velvet Pickseed	C	Spectrum Blend	Turf Merchants	B
Penncross	Northrup King	B	Spectrum		
	Tee-2-Green	C	V.I.P. Blend	Turf Merchants	B
Penneagle	Tee-2-Green	C			
Kentucky Bluegrass					
A-34 BenSun	Warren's	C	Gnome	Turf Merchants/	B
Abbey	O.M. Scott	B		Jon. Green	
Adelphi	Jacklin/	C/B	Haga	Burlingham	S
	Northrup King		Harmony	Seed Research	B
Alpine	Pickseed	C	Huntsville	Jacklin	B
Amazon	Jacklin	C	Ikone	International	C
America	Pickseed	B	Julia	Lesco	B
Aspen	Northrup King	B	Liberty	Garfield Williamson	B
Banff	Pickseed	B	Lofts	1757 Lofts	C
Baron	Lofts	B	Majestic	Burlingham	S
Blacksburg	Turf Seed	C	Merion	Jacklin	B
Bristol	O.M. Scott	C	Midnight	Turf Seed	B
Bronco	Pickseed	C	Minstrel	Van Der Have	C
Challenge	Turf Seed	B	Mystic	Lofts	C
Chateau	Ampac/Fine	C	Nassau	Lofts/Jacklin	B
	Lawn Res.		Nugget	Jacklin/Pickseed	B/C
Cheri	Jacklin/Olsen-Fennell	B/C	P-104 (Princeton)	Lofts	C
Classic	Jacklin	B	Parade	Northrup King	B
Columbia	Turf Seed	B	Ram I	Lofts/Jacklin	C
Coventry	O.M. Scott	B	Rugby	Northrup King	B
Cynthia	Van Der Have	C	Sophia	Van Der Have	B
Dawn	Lesco	B	Suffolk	Jacklin	C
Destiny	Jonathan Green	B	Sydsport	Burlingham/Jon.	S/C
Eclipse	Jacklin/Gfld.	C		Green	
	Williamson		Tendos	Turf Merchants	C
Enmundi	Seed Research/	C	Touchdown	Pickseed	B
	Jon. Green		Trampas	Daehnfeldt	C
			Trenton	Northrup King	B
Estate	Roberts	C	True	Blue Turf	
Freedom	Jacklin	C		Merchants	B
Fylking	Jacklin	B	Twilight	Turf Merchants	C
Georgetown	Lofts	C	Victa	O.M. Scott	B
Glade	Jacklin	B	Wabash	Jacklin	B
Rough Bluegrass					
Colt	Pickseed	B	Sabre	International	A
Laser poa trivialis	Lofts	C			
Common Bluegrass					
Argyle	Olsen-Fennel	B	S-21	Jacklin	A
Kenblue	Jacklin/Olsen-Fennel	B	South Dakota	Jacklin	A
			Troy	Jacklin	A
Newport	Jacklin/Olsen-Fennel	B/C			
Park	Jacklin	B			
Turf-Type Tall Fescue					
Adventure	Warren's	C	Mustang	Pickseed	B
Apache	Turf Seed	B	Olympic	Turf Seed	B
Arid	Jacklin/Olsen-Fennel	C	Pacer	International	B
			Rebel	Lofts	C
Bonanza	Olsen-Fennel/ Proprietary	C	Rebel II	Lofts	B
			Rebel Jr.	Lofts	T
Bonsai Dwarf	Turf Merchants	C	Richmond	Jonathan Green	B
Chesapeake	O.M. Scott	C	Survivor Blend	Seed Research	B
Chieftan	Roberts	C	Tempo	Normarc	C
Cimarron	Lesco	B	Thoroughbred	Pickseed	B
Clemfine	Lofts	B	Titan Seed	Seed Research	B
Emperor	Garfield Williamson	C	Trailblazer	Lesco	B
			Transition Blend	Lesco	B
Falcon	Olsen-Fennel/ Burlingham	C/S	Triathalawn Blend	Turf Seed	B
			Tribute	Lofts	C

A bluegrass surplus will ease one of the growning concerns in the industry: lack of land. Growers were eating up large tracts of farmland at a swift pace to boost yield amounts to meet demand.

The crop was an average one, which is to say it was pretty good since recent crops had been well below average. Jacklin-Ward notes that high yielding varieties yielded even higher than normal this year while lower yielding ones were below normal. Break-even.

Turf Merchants' Tubbs adds, "Our stuff is doing just phenomenal this year. We've had 2,500 to 2,600 pounds per acre yield of Gnome when the average is about 1,200 pounds per acre."

However, common varieties did poorly this year, down 30 percent despite increased acres, Jacklin-Ward says. Pickseed's Wiley is even less optimistic. "Some estimates are one-half of last year," he says.

What's a surplus?

There is good news, though. Many of the marketers are predicting a surplus soon, perhaps next year. Jacklin-Ward is one. After a number of years of com-

GRASS SEED AVAILABILITY CHART

Availability Key: **A**-surplus **B**-adequate **C**-limited **T**-testing only **S**-sold out

VARIETY	MARKETER	AVAILABILTY	VARIETY	MARKETER	AVAILABILTY
Turf-Type Tall Fescue					
Finelawn I	Ampac/Fine Lawn Res.	C/B	**Mojave**	Olsen-Fennel	C
Finelawn 5GL	Fine Lawn Res.	C	**Monarch**	Turf Seed	C
Galway	Northrup King	B	**Trident**	Ampac/Seed Research	C/B
Houndog	International	B	**Trophy Blend**	Seed Research	B
Jaguar	Garfield Williamson	B-C	**Turfgem II Blend**	Turf Merchants	C
Jaguar II	Garfield Williamson	C	**TurfMates Blend**	Turf Merchants	C
Maverick	Pickseed	C	**Wrangler**	Lesco/Jacklin/Turf Merchants	C
Mesa	Jonathan Green	B			
Fine Fescues:					
Chewings Fescue					
Agram	Pickseed	B	**Shadow**	Turf Seed	B
Allaire	Jonathan Green	B	**Sherwood**	Jonathan Green	B
Atlanta	Van Der Have	B	**Victory**	Pickseed	B
Banner	O.M. Scott	B	**Waldorf**	Van Der Have	B
Cascade	Olsen-Fennel	C	**Creeping**	Red Fescue	
Enjoy	International	B	**Cindy**	International	C
Ensylva	International	B	**Dawson**	Northrup King/Van Der Have	B
Epsom	Van Der Have	C			
Estacada	Turf Merchants	C	**Flyer**	Turf Seed	C
Jamestown	Lofts	B	**Fortress**	Turf Seed	C
Jamestown II	Lofts	T	**Jasper**	Pickseed	C
Koket	Burlingham	C	**Pennlawn**	Olsen-Fennel	B
Longfellow	International	C	**Ranier**	Olsen-Fennel	B
Mary	Van Der Have	C	**Ruby**	Northrup King/Van Der Have	B
Puma	Daehnfeldt	C			
Scarlet	Van Der Have	B	**Shademaster**	Lesco	C
			Virtus	Turf Merchants	C
Hard Fescue					
Attila	Turf Merchants	C	**Spartan**	Pickseed	B
Aurora	Turf Seed	B	**SR-3000**	Seed Research	B
Reliant	Lofts	B	**Tournament**	Pickseed	C
Scaldis	Northrup King	B	**Waldina**	Turf Seed	C
Sheep Fescue					
Azay	Pickseed	C	**Bighorn**	Turf Seed	C

Distributors hope a surplus of bluegrass will help ease the problem of reduced acreage in the Willamette Valley, Washington and Idaho.

When it's time to dig in... it's time for a backhoe from Woods

Now Woods offers three reliable backhoes that can out-perform others their size. The newest is the Model 1050 and it's ideal for farming, light construction and landscaping. Golf courses, nurseries, utility companies and cemeteries now have a versatile backhoe for digging footings, wiring trenches, irrigation and drainage ditches, as well as other earth-moving applications.

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Reach	13′ 1″	9′ 4″	7′ 10″
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For Tractors Rated	50-130 hp	20-40 hp	18-35 hp

Get the "full scoop" on these three top performing backhoes. Send for complete specifications today.

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GRASS SEED AVAILABILITY CHART

Availability Key: **A**-surplus **B**-adequate **C**-limited **T**-testing only **S**-sold out

VARIETY	MARKETER	AVAILABILTY
Perennial Ryegrass		
Accolade	O.M. Scott	C
Allaire	Turf Merchants	A
All*Star	Ampac/ International	C
Jacklin		B
Aquarius	Turf Merchants	C
Barry	Turf Merchants	C
Belle	Burlingham	S
Birdie II	Turf Seed	B
Blazer	Pickseed	B
Blazer II	Pickseed	C
Brenda	Van Der Have	B
Caddie	Northrup King	C
Calypso	Roberts	C
Caravelle	O.M. Scott	B
Citation II	Turf Seed	B
Commander	Lesco	B
Cowboy	Lofts	C
Crusader creeping	Turf Merchants	C
Dandy	Bailey	B
Dasher	Pickseed	C
Dasher II	Pickseed	B
Delray	Northrup King	B
Derby	International	A
Diplomat	Lofts	C
Elka	International	B
Fiesta	Pickseed	B
Fiesta II	Pickseed	B
Gator	International	A
Goalie	Northrup King	C
Jazz	Pickseed	B
Lindsay	International	C
Loretta	O.M. Scott	B
Manhattan II	Turf Seed/ Turf Merchants	B/C
Mondial	Van Der Have	B
NK200	Northrup King	C
Nova	Seed Research	C
Omega II	Turf Seed/Gfld.	B
Ovation	O.M. Scott	B
Palmer	Lofts	B
Patriot	Turf Merchants	A
Pennant	Olsen-Fennel/ Burlingham	B/S
Pennfine	Olsen-Fennel/ Turf Merchants	C
Northrup	King	B
Pinnacle	Normarc	C
Pleasure	Ampac	C
Plus	Olsen-Fennel	B
Polly	Daehnfeldt	A
Prelude	Lofts	B
Premier	Normarc	C
Prestige	Olsen-Fennel	C
Ranger	Van Der Have	C
Regal	International	A
Regency	Lesco	B
Repell	Lofts	C
Rodeo	Turf Merchants	A
Sheriff	Van Der Have	C
SR-4000	Seed Research	B
SR-4100	Seed Research	B
Saturn	Turf Seed/Gfld. Williamson	C
Signature	Lesco	C
Stallion	Turf Merchants/ Fine Lawn	C
Sundance	Roberts	C
246 Sunrye	Turf Seed	C
Tara	Ampac	C-B
Troubadore	International	C
Vantage	Proprietary Seeds	T
Vintage 2df	Lesco	B
Yorktown	Lofts	C
Annual Ryegrass		
Dalita	Daehnfeldt	A
Gulf	Olsen-Fennel	B
Winter Overseeding Blends		
CBS II	Perennial Ryegrass Blend Turf Seed	B
Champion Seed	Research	B
Dixie Green	International	A
Dixie Green + Sabre	International	A
Double Eagle	Lesco	B
Blend	Lesco	B
Eagle Blend	Pickseed	B
Futura Plus	Pickseed	B
Futura 2000	rye blend	B
Magnum	Proprietary Seeds	
Marvelgreen Supreme	Lofts	B
Marvelgreen 3 + 1	Lofts	B
Marvelgreen + Laser	Lofts	B
Marvelgreen Classic	Lofts	B
Medalist 5	Northrup King	B
Medalist 6	Northrup King	C
Medalist 7	Northrup King	B
Medalist 7 + Sabre	Northrup King	A
Medalist 300	Northrup King	A
Medalist 400	Northrup King	A
Medalist 400 + Sabre	Northrup King	A
Par Blend	Lesco	B
Ph.D.	International	A
Ph.D. + Sabre	International	A
Pin-Hi	Ampac	C
Playmate	Roberts	C
Proform Triple Classic	Garfield Williamson	B
Quartet Rye Blend	Van Der Have	B
Spectrum Rye	Turf Merchants	B
Symphony	Burlingham	S
Tara-Green	Ampac	C
Transtar	Lesco	B
Triple Play Rye	Fine Lawn Res.	B
Trylogy	Burlingham	S
V.I.P. Rye	Turf Merchants	B
Vintage Plus	Lesco	B
Winter Turf I	O.M. Scott	B
Winter Turf III	O.M. Scott	B
Winter Turf V	O.M. Scott	B
Winter Turf IX	O.M. Scott	C
Other		
Certified Streaker red top	Jacklin	B
Crusader Ryegrass-hard Fescue Mix	Seed Research	B
Four Star Sod Blend	Jacklin	C
Medalist Permanent Turf Blends and Mixtures	(15 total) Northrup King	B
Pinto Wildflowers	Lofts	B
Reubens Canada Bluegrass	Jacklin	B

Some new varieties expected to hit the market this year: Providence bentgrass, Alpine bluegrass, Bonsai dwarf turf-type tall fescue and Cobra bentgrass.

pletely sold out bluegrasses, she sees a surplus for 1989 (if the weather holds, of course). "I anticipate next year we'll have to learn how to sell again," she says happily. In recent years the company has had to turn away prospective customers because there wasn't anything to sell them.

Turf Seed's Stanley is anticipating a surplus in "one to two years." Mike Robinson of Seed Research is even predicting a surplus of bluegrasses this year "because there's more interest in turf-type tall fescues and ryegrasses."

Whenever it happens, a bluegrass surplus will ease one of the growing concerns in the industry: lack of land. Growers were eating up large tracts of farmland at a swift pace to boost yield amounts to meet demand.

"We're starting to run out of this big bank of acreage," Wiley explains. "It's gotten much tougher now. The northern end of the Willamette Valley (where most of the ryes and tall fescues are grown) is competing with the grain markets for acreage. It'll be hard to get acreages of turfgrass because of the (higher) prices of wheat."

Farmers, who are businessmen, too, see more profits in growing the higher priced wheat. Consequently, there is less room for grass. Similar problems exist in the bluegrass belt of Idaho and Washington, Jacklin-Ward confirmed.

New wave

This reduced acreage availability hasn't stemmed the tide of new varieties. In addition to Pickseed's ryes, a plethora of new varieties were expected to hit the market this year, including Providence bentgrass (formerly SR 1019) from Seed Research, Alpine bluegrass from Pickseed West, Bonsai dwarf turf-type tall fescue from Turf Merchants and Cobra bentgrass from International Seeds. Turf Seed is planning on releasing a Silverado-Eldorado-Monarch blend in 1989—the first dwarf turf-type tall fescue blend ever. **LM**

The Miracle at Jack Murphy Stadium

Or how George Toma and Ph.D.® Overseeding Blend created Super Bowl quality turf in 25 days & 25 nights

BEFORE • January 2, 1988

AFTER • January 27, 1988

January 2, 1988

The native turf of Santa Ana hybrid Bermuda grass in Jack Murphy stadium, San Diego, California, is seen here after a hard season of use. As the first step in preparing the field for Super Bowl XXII, George Toma and his famed "Sod Squad" first brushed and vacuumed the holiday bowl game designs at midfield and in the end zone, and shatter-core aerified the field.

January 6, 1988

The "Sod Squad" sowed Ph.D.® turf-type ryegrass overseeding blend on the bare soil and areas in which there was 50-80 percent remaining coverage of dormant Bermuda grass. Seeding rate was 30 pounds per 1,000 square feet. Ph.D.® has been used in seven Super Bowl games with superlative results. Because it produces superior turf in the shortest possible time, Ph.D.® ryegrass blend is always specified by Toma before work begins.

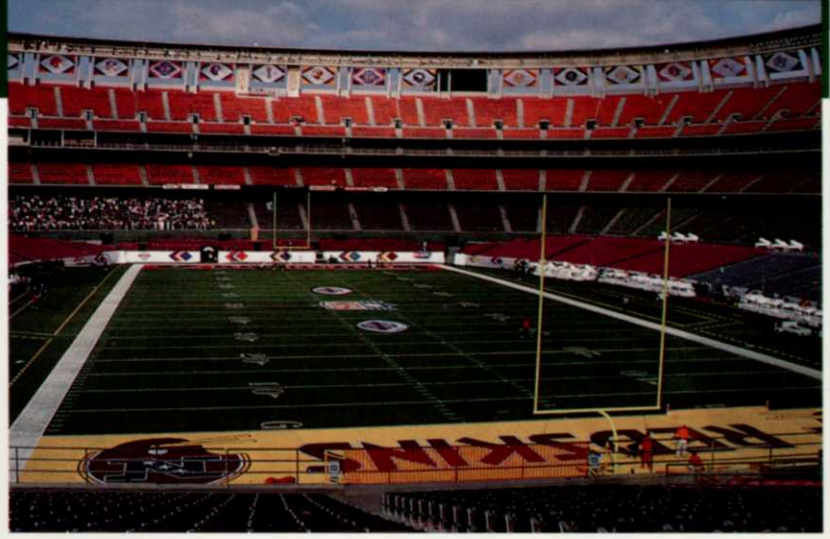
January 15, 1988

Six days after the Ph.D.® was sown, the thick, dark green ryegrass turf was approximately 1½ inches high and ready for its first mowing. It is being cut here for the *third* time on January 15 with John Deere equipment. While ryegrass will germinate in a matter of 7-10 days under ideal conditions, Toma accelerates the process by pre-germinating the seed.

January 29, 1988

It's the Friday before the Sunday game. For some 12 hours more than 1,500 participants in the show scheduled for half-time on Sunday practice their routines on the new turf. Not all wore high heels, but the pounding feet of marching bands, drill teams and the heavy stages on wheels used in the half time show means the Super Bowl turf must be able to take plenty of punishment and come right back.

hy Stadium



January 31, 1988

It's Super Bowl Sunday! Under the direction of George Toma, the Ph.D.® ryegrass overseeding blend is deep green, deep-rooted and ready for the tearing cleats of the players as well as the pounding it will be given by the half-time performers. It's a demanding role for any grass, but this all-ryegrass mixture has proven equal to the task and is picture-perfect for the television cameras on game day.

Turf wizard George Toma not only prepares the playing surface for all Super Bowl games, he's the groundskeeper for the Kansas City Royals baseball club and the Kansas City Chiefs professional football team.

Most knowledgeable turf experts acknowledge that he is the best groundskeeper in the business.

Toma says that Ph.D® turf-type ryegrass overseeding blend with its ability to quickly germinate and develop a strong root system, is a major factor in his success in turf preparation.

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WINTER OVERSEEDING

Switching from warm-season to cool-season turf and back again is no longer a matter of luck.

by A. R. Mazur, Ph.D., Clemson University

Many turf managers think that overseeding is merely scattering seed and waiting for it to germinate. In fact, overseeding is a complex operation that doesn't depend on luck for success.

The technology associated with overseeding has come a long way in the last 15 years. Methods of surface preparation have evolved from severe dethatching and scalping to less disrupting practices like lighter, more frequent thatching and raising mowing heights during the establishment phase.

New concepts facilitate the shift from warm-season to cool-season turfgrasses during the fall and spring transition periods. In addition, there has been a switch from using annual to perennial ryegrass and the development of more improved cool-season cultivars for overseeding mixtures and blends. This has resulted in lower seeding rates and less injury from disease.

While these technological advances have solved some problems, new ones have taken their place. For example, the dense stands of improved cool-season turfgrasses now pose severe competition to emerging Bermudagrass during the spring transition period.

To solve this problem, it's important to develop a healthy hardened warm-season turf prior to winter dormancy. A 1:1 nitrogen-to-potassium ratio during the mid-summer period

Overseeding high management turf

Here is the accepted procedure to overseed fine turf:

1. Verticut the area in two directions, four to seven days prior to overseeding. On greens it is best to avoid mowing for several days before overseeding to allow a stubble to develop to help hold seed in place. Avoid topdressing on greens prior to seeding because it destroys uniform seed placement. The uniform distribution of seed is most easily obtained with a centrifugal-type spreader, applying the seed in a minimum of four directions.

Using fungicide-treated seed is the most effective method of minimizing seedling diseases that can be so devastating on densely planted, overseeded turf.

2. Immediately after seeding, the area should be matted with a piece of carpet tied under a steel drag mat. This process works the seed into contact with the soil surface.

3. Topdressing the area then serves as a light mulch to enhance germination. The topdressing material should be a mix comparable to the material in the root zone to prevent a layering condition. Layers are often responsible for disruption of water movement in the soil profile. For low management turf, preparation is merely a closer than normal mowing and removal of clippings prior to seeding. □

has been shown to improve stress tolerance. However, nitrogen fertilization should be stopped three to four weeks before overseeding. This will provide good uniform growth and color in the Bermudagrass without creating excessive competition with the overseeded cool-season grasses.

Optimum thatch level

Thatch levels have been shown to have a significant effect on the success of overseeding high management turf. The standard ½ inch of thatch desired for resiliency and cushion is still the goal. Excessive thatch results in poor seed-soil contact and offers less than optimum conditions for germination. Seedlings that germinate under excessive thatch conditions are more susceptible to moisture and temperature stresses.

A maintenance program on greens, including light, frequent verticutting and/or topdressing during the summer, is more effective than severe dethatching two to three weeks before winter overseeding. This will provide the uniform and smooth surfaces to permit close, frequent mowing.

Lower maintenance grasses, such as centipede, St. Augustine and bahia, usually present fewer thatch management problems.

Coring should be completed on lower management grasses during the spring or summer. On high management areas such as greens, coring must be avoided within three to four weeks of overseeding. (Seed germination in aeration holes will result in a very unsightly checkerboard appearance.) Aeration also promotes annual bluegrass intrusion into overseedlings.

Weed control

Winter annual weeds, particularly annual bluegrass, can be a serious problem in overseeded turf. Although cultural practices influence the extent of weed invasion, acceptable control can only be assured with a pre-emergence herbicide.

The herbicides, in order to be effective without injuring the seedling turf, must be applied 45 to 60 days before overseeding. Herbicides have to be applied uniformly to an area with a minimum of 50 gallons of water per acre. Irrigation or rain must follow within 7 to 10 days after application to assure the herbicide's effectiveness. Pre-emergence herbicides should not be used on areas without good surface and/or internal drainage. That can cause turf injury when washed or concentrated in low areas.

The basic attributes of grass for winter overseeding are rapid germination, good seeding vigor, fine texture, good color, disease tolerance and large seed size. Since perennnial ryegrass is the cool-season grass with the greatest number of these characteristics, it has become the backbone of winter overseedings.

Each cultivar used for overseeding has distinct characteristics of color, texture and tolerance to disease and environmental stresses. For this reason, ryegrass cultivars are often blended or mixed with other cool-season species to get a desired effect or performance. Although other cool-season species are not generally used alone, they are often included in mixtures to strengthen the performance of the overseeding. This practice improves color, density, disease tolerance and mowing qualities.

Mowing tolerance

Late in the season, perennial ryegrass becomes difficult to cleanly mow, due to the fibrous nature of its vascular strands. Including other cool-season species in overseeding mixtures provides for a much cleaner mower cut.

Poa trivialis is frequently included in mixtures for quick germination and fine leaf texture that improves quality in both spring and fall. The light color of rough bluegrass also helps to mask the presence of any annual bluegrass. A major problem with *Poa trivialis* seed has been contamination with weed seed, especially annual bluegrass.

Red fescue has been used to add leaf stiffness, fine texture and mid-season color, but is much slower to establish than perennial ryegrass.

Bentgrass is added to mixtures to strengthen spring performance. It provides fine texture and color, as well as good drought and heat tolerance. But it may be excessively competitive with emerging Bermudagrass in the spring.

Kentucky bluegrass is infrequently used because it germinates very slowly, has weak seedling vigor and a coarse texture. Its major contribution is enhancing mid- and late-season color.

Using ryegrass blends

Many high quality perennial ryegrass blends and mixtures are commercially available. The important thing is to have the seed on hand well in advance of the planned overseeding date. Seed must be stored in a cool dry area to maintain viability and prevent seed dormancy from developing.

Another important factor in overseeding success is timing establishment. Traditionally, timing has been based on calendar dates and past experience with the local climate. At best, this has been a hit-or-miss approach. Why is timing so critical? If seeded too soon, the cool-season turfgrasses are subjected to extreme pressure from diseases such as pythium, brown patch and warm-season grass competition.

The ideal conditions for establishment are warm daytime temperatures to encourage germination and cool nights to reduce Bermudagrass competition and disease pressure. More recently, the use of long-range weather forecasts and soil temperatures have greatly improved the

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Circle No. 105 on Reader Inquiry Card

success of overseedings. If overseeding and fall transition are delayed, the onset of cold weather can result in poor germination, reduced stands and general failure.

General technique

Overseeding technique is extremely important to the quality of turf during the fall transition period. The warm-season turf provides much of the overall turf quality of the sward in the fall until it goes dormant with the first hard frost. This preparation ensures good seed and soil contact and provides uniform germination and root development. Also, it reduces warm turf competition and thatch levels, thereby decreasing the potential for injury from environmental stresses and diseases.

Since the turf will continue to be in use or view during overseeding, the less disruptive the operation the better.

Maintenance

Watering, disease control, fertility and mowing are important to develop and maintain overseeding quality. Light, frequent watering should begin immediately after the seeding operation is finished and continue for seven to 10 days for uniform germination. Uniformity of germination is proportional to the ability to keep the top 1/2-inch of the seedbed moist. Three to five light waterings daily (to just moisten the surface) provide the best results.

Generally, natural precipitation is adequate for overseeded turf. However, during extended periods of dry weather, it is often necessary to irrigate to avoid stress and/or seedling loss.

Overseeding dormant turf is a unique situation with respect to turfgrass management. Under normal situations turfgrasses are seeded at rates that will allow adequate room for it to develop and mature. The rate used for overseeding results in excessive seedling crowding, competition and the failure of the plants to develop lateral growth and physiological maturity. Under these conditions, the turfgrass manager is dealing with a seedling stand for a seven- to nine-month period.

Controlling disease

A preventive fungicide program is important when dealing with high density cool-season seedling populations under environmental conditions favorable for disease development. Using treated seed provides protection during the germination phase. At the highest seedling densities on greens, a preventive fungicide program must be continued as long as environmental conditions dictate.

Since use or play on most overseeded areas is continuous, these areas must be mowed regularly. Since seedling turf is injured easily by traffic, precautions must be taken during the first few weeks of overseeding. As mowing frequency is a factor of cutting height, lawns and athletic fields may be mowed for the first time seven to 10 days after germination. Mowing on greens can begin almost immediately.

As with other turfgrass areas, no more than 30 to 40 percent of the leaf surface should be mowed at any one time. The daily mowing height on greens is raised for the first two or three mowings to 3/8 inch. Although surfaces may be slightly slower, this practice assures seedling survival and development.

Mowing height should be lowered by 1/32-inch weekly to 1/4- to 7/32-inch maintained on putting surfaces. New overseedings are easily damaged by mower and equipment traffic. Walk-behind mowers are often preferred for the first several mowings. Triplex mowers and other heavy equipment should be used with care. Although seedlings do not cut very cleanly during the first two to three mowings, double-cutting and clean-up passes must be avoided.

Technological advances have solved some problems with overseeding, but new ones have appeared.

Fertilization needs

Overseedings are usually fertilized at the time of seeding with a complete 12-4-8 grade fertilizer at the rate of 1 lb. of nitrogen per 1000 sq. ft. This will provide the essential nutrients for seedling development and avoids the potential of salt burn injury to seedlings. Additional fertilizer applications are withheld two to three weeks until the seedlings are less prone to injury.

Soluble nitrogen sources are the most effective for overseedings, primarily because of the cooler temperatures during overseeding period. An application of fertilizer to provide 1 lb. of nitrogen per 1,000 sq. ft. every three to four weeks on greens and four to six weeks on lawn turf will provide aesthetically pleasing and serviceable turf.

It is important to remember that fertilizer materials should always be applied to dry leaf surfaces and watered to prevent foliar damage. **LM**

Proper seeding rates

The optimium seeding rate provides quick establishment and a dense cover of overseeded turf. On the other hand, low seeding rates mean very slow establishment with thin stands of poor quality. High seeding rates are expensive and result in excessive seedling competition and a higher disease incidence.

Most turf areas are seeded with perennial ryegrass alone or mixtures containing perennial ryegrass and other cool-season species. When using a mixture, the seedling rate can easily be calculated by multiplying the percentage of each grass by the optimum seeding rate.

An example for putting greens would be a mixture of 90 percent perennial ryegrass and 10 percent bentgrass. This mix would be planted at 27lbs. of ryegrass (.9 × 30) and 1/2 lb. bentgrass (.1 × 5) per 1,000 sq. ft.

The accompanying table shows the optimum rates for overseeding.

OVERSEEDING RATES

Turfgrass species	Seeding rate pounds per 1,000 sq ft	
	Greens	Lawns**
Perennial ryegrass	30	8-15
Red fescue	25	8-15
Poa trivialis	10	3-5
Bentgrass	5	*
Annual ryegrass	*	10-20
Kentucky bluegrass	*	3-5

* Not recommended

** Includes athletic fields and fairways where rate is a factor of the degree of cover and color desired.

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Circle No. 109 on Reader Inquiry Card

On Design

by Will Perry, managing editor

In a New England garden

Thanks to the work of Carol R. Johnson & Assoc., we're able to step back in time—to the mid-1880s when English-style gardens softened the urban landscape of many New England towns. This historic garden is the central focus for a group of restored 19th century houses in University Green, Cambridge, Mass.

The garden was designed to soften the height and mass of a new condominium complex and to integrate it into the rest of the historic district. Because it rests above an underground parking garage Johnson used polystyrene foam as a fill material and to complement a lightweight wire mesh product that acts as a drainage material. Expanded shale was used as a fill material under walkways and the structural loads were estimated for each square foot of the garage roof. All the plant life was tested by Johnson to be sure it could thrive in the 12 inches of soil available.

The garden itself features arched, lighted entryways, brick walks, granite cobble walls, a manicured lawn and shade trees to provide an overall sense of tranquility. Flowering fruit trees, perennial flower borders, a kitchen herb garden with bird bath and a grape arbor give added layers of detail, enrichment and a sense of place and offer color throughout the growing season.

Circle no. 250 on Reader Inquiry Card

Beauty along a Florida road

In 1983 the business community and homeowners of Marco Island, Fla. collected a special tax to fund the landscaping of neighborhood roadways. A. Gail Boorman & Assoc. was chosen to design the South Barfield Drive corridor, which serves as a collector to a large area of waterfront homes in the southern portion of the island. "Our challenge was to create a sophisticated residential roadway landscape that derives its characteristics from the natural history of the area," says Boorman.

To accomplish that end, the design and plant palette were kept simple, creating a visual flow of repeated elements that give the area a bold, unique identity. Berming was extensively used, symbolic of the upland rolling hills of the area. Earth sculpting and plant massing enhances the residential scale and creates a flow of visual continuity. The relationships of trees in groups is reminiscent of natural patterns found in native hammocks. Grasses (both native and ornamental) are extensively used.

Boorman used native plant selections whenever possible and non-natives were selected to complement the native look. All plants conform with the xeriscape program implemented by the local water company and require minimal maintenance upon maturation.

Circle no. 251 on Reader Inquiry Card

Business amongst the trees

Next door to the Morton Arboretum outside Chicago is the Corporetum Office Complex, a 75-acre site hosting nine office buildings adjacent to the Illinois East-West Tollway. It was developed to provide a prestigious office campus environment to attract major corporations.

Landscape architect John M. Ryan, of Ives/Ryan Group, Inc., Des Plaines, Ill., used large plant materials to compensate for a total lack of existing mature vegetation in the area. Five to six inch shade trees and 14-foot ornamental trees were used in key viewing and access areas. The linear nature of the site in combination with its orientation to major highways on both the front and rear exposures resulted in viewable parking lots. These lots are screened through the establishment of "native groves," which introduced the feeling of forest remnants along the project frontage. These groves are composed of plants that associate together in nature. A typical grove consists of an anchor of shade trees spaced thirty to fifty feet apart, which are then underplanted with closely spaced shade-tolerant trees and masses of shrubs that naturally colonize. The grove is mulched with a base of leaf compost overlayed with wood chips. Its edges are planted with forest edge ornamental trees and perennials.

It should come as no surprise that this design won awards from the American Association of Nurserymen, the Chicago Sun Times and the Illinois Landscape Contractors.

Circle no. 252 on Reader Inquiry Card

GROWTH REGULATORS FOR TREES AND SHRUBS

The further development of plant growth regulators may make them more applicable to landscaping.

by Thomas J. Banko, Ph.D., and Marcia Stefani, VPI-SU

The most common use for growth regulators in landscape management and nursery production is to suppress growth. Under certain circumstances, growth suppression may be useful for managing turfgrasses, trees, shrubs and even bedding plants.

Growth regulators have been used for a number of years in the production of greenhouse crops such as poinsettias and mums, and also in the production of container-grown nursery plants such as azaleas. Their use in the landscape has come slower, probably because some of the older chemicals cause phytotoxic symptoms at effective rates on shrubs, trees, and turf.

Some recent developments in plant growth regulators may make this group of chemicals more useful to those involved in landscape maintenance. Some of these products are so new that they are not yet commercially available, but all of the products discussed here are on the market or are expected to be available within the next year.

Controlling tree growth

The most serious problem with trees is controlling their growth into utility lines. Utility companies spend millions of dollars each year trimming trees away from power lines. Therefore, utility company foresters and line clearance managers have been among the first to use growth regulators to control trees. Although most of the earlier work with tree growth regulators was done on trees under utility lines, recent developments are opening up a potential for the using of growth regulators on trees in the general landscape.

The idea with growth regulators is not to stop growth, but to reduce it so that the tree can renew itself and achieve a reasonably normal appear-

Utility company foresters and line clearance managers have been in the forefront in the use of growth regulators to control tree growth.

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ance. The hoped advantages of growth regulators are:

• Reducing growth—especially sprout growth—following extensive trimming. This extends the trimming cycle which leads to reduced maintenance expenses.

• Reducing the amount of wounding due to repeated trimming. It is estimated that the average tree trim exposes about 400 sq. in. of cut surface. This stresses the tree due to the energy needed to heal this area, and it exposes a large area to disease organisms.

• Improving stress resistance by reducing surface area exposed to water loss and reducing the energy wasted on excess regrowth.

• Allowing normally large trees to be planted in smaller spaces. In many cases the appearance of the tree is improved by using a growth regulator. That's due to a reduction in sprout

PGRs: a tool to manage mowing

It may seem that the ideal growth regulator would stop growth completely, making mowing unnecessary. But that is an unrealistic expectation. Turfgrasses are constantly subjected to environmental stresses such as traffic, disease, insects and pollution. The only way grasses have to repair the damage from these stresses is by growing and replacing the damaged shoots. Therefore, some growth must be allowed.

Growth regulators should be thought of as a tool to help manage the mowing schedule, not to replace mowing completely.

There are two major potential uses for growth regulators in turf maintenance. One is control of low-maintenance, low-quality turf such as along roadsides, steep slopes, fencerows, ditches, and stream banks. The second is in difficult-to-mow areas of higher quality turf.

Another possible use is on more formal, high-quality turf where mowing is continued, but a growth regulator is applied at a low rate to reduce some mowing. Currently, this application for growth regulators is highly limited, probably because most lawns are exposed to injury by foot traffic and that growth is needed in order for the grass to rejuvenate itself.

Difficult-to-mow areas such as steep slopes may be ideal sites to use growth regulators.

Types of PGRs

The greatest potential use of turfgrass growth regulators for general landscape management is for difficult-to-mow areas such as steep slopes, along fences, or around obstacles.

Some specific characteristics of turfgrass growth regulators are as follows:

● Maleic hydrazide (Royal Slo-Gro, Drexal Retard): first growth regulator available for turf; for cool-season grasses only; inhibits growth by suppressing cell division in the shoots, roots, and buds; suppresses root and rhizome development; seedhead formation inhibited if application is timed properly; best application time is in spring when forsythia and dandelions are in full bloom; use limited to low maintenance areas due to possible phytotoxicity and excessive growth inhibition; not recommended for home lawns except possibly for edge treatments along walls and around trees.

● Mefluidide (Embark): newer growth regulator for both cool- and warm-season grasses; considered a standard of the industry for grass control; suppresses vegetative growth and seedhead production in plant areas; may be used to arrest seedhead development of *Poa annua*; not readily translocated; does not restrict roots and rhizomes low phytotoxicity potential; good product for general landscape maintenance work; should still be considered for use only on low-maintenance, hard-to-mow and trim areas.

● Amidochlor (Limit): cool-season grasses only; suppresses shoot growth, inhibits seedhead formation; needs rainfall or irrigation within three to five days of application; does not suppress root development; features low phytotoxicity and tolerance of application overlap.

● EPTC (Shortstop): new growth regulator recommended for tall fescue; can cause severe phytotoxicity on finer turfs; root-absorbed; suppresses both shoot growth and seedhead formation; also provides some broad-leaf weed suppression.

● Chlorflurenol (Maintain CF-125): cool-season grasses; suppresses shoot growth, inhibits seedhead formation; also controls some broadleaf weeds.

● Paclobutrazol (Clipper, O.M. Scott's TGR): new growth regulator for both cool- and warm-season grasses; good residual control of shoot growth, but does not suppress seedheads; foliar and root absorbed; does not restrict roots or rhizomes; also provides some broadleaf weed suppression; will gradually reduce *Poa annua* in perennial turfs; yellowing of leaf blade tips four to six weeks after application possible; Scott's TGR is a granular formulation, which also provides nitrogen fertilization.

● Flurprimidol (Cutless): very new growth regulator, not yet available commercially; effects on turfgrass very similar paclobutrazol.

In general, plant growth regulators can be helpful in managing turfgrasses, but they should be used with caution and should be selected carefully to match the situation involved. They are still not recommended for high quality turf situations, except for edging and difficult-to-mow areas. Plant growth regulators inhibit the renewal process of grass plants. This can lead to increased disease, insect, and traffic prblems and result in lower turf density.

—Banko and Stefani □

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growth that occurs following extensive trimming, and because certain growth regulators cause a darker green color.

Basically two groups of growth regulators are for woody plants. Terminal bud inhibitors comprise the first and oldest group. This includes maleic hydrazide (Royal Slo-Gro, MH-30, Drexal Retard), chlorfluorenol esters (Maintain) and dikegulac (Atrinal, Atrimmec).

Although all of these materials have been used effectively to control tree growth, injury symptoms have been observed and regrowth has been variable. Also, inhibition of the terminal buds tends to stimulate branching, which may be desirable with certain shrubs to promote bushiness, but is not particularly desirable for tree regrowth.

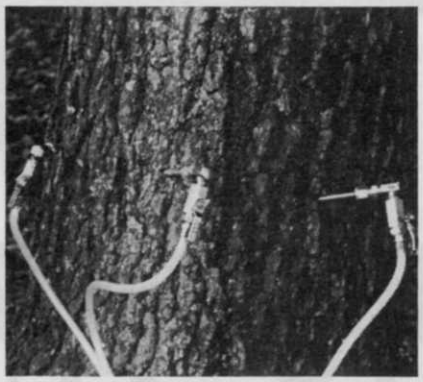
The second group includes the subapical meristematic (gibberellin biosynthesis) inhibitors ("growth retardants"). These compounds act by inhibiting the synthesis of gibberellin in the plant. Gibberellin is a natural growth hormone that promotes cell elongation in the stem just below the apical meristem. By inhibiting the production of this growth hormone, stem length is greatly reduced.

Recently-developed representatives of this class of regulators include paclobutrazol (Clipper), flurprimidol (Cutless) and uniconizole (Prunit). These materials are extremely active, requiring a relatively little active ingredient for growth control, without producing noticeable injury symptoms. Their effect lasts up to three years, and they are highly specific to the stem elongation process. Other processes, such as root growth, stem diameter enlargement and flower and fruit development continue normally.

Application methods

The above-mentioned compounds can enter the tree through the trunk or through the roots. The chemical is carried by the xylem cells in the sapwood of the tree, upwards, along with water and other nutrients, to the growing ends of the stems. Growth regulators such as Clipper have been successfully applied using trunk injection, soil drench, soil injection, and soil band spraying. The most effective and environmentally safe method is trunk injection.

To prepare for the injection, measure the trunk's diameter within two feet of the ground. The diameter is used to determine the amount of chemical to inject and the number of injector holes needed. This information is found on the label. Drill holes uniformly around



The most effective and environmentally safe method of applying growth regulators is trunk injection.

the trunk, horizontal or with a slight downward angle, and at a 30 to 45 degree angle to the plane of the trunk to intercept the outer sapwood. Place the injectors in the holes, adjust the system for the proper dose and activate. Injection time may vary from a few seconds to a few minutes depending upon the injector system, tree species, and time of year.

Afterwards, the holes may be sealed with a vinyl plug or silicone caulk to prevent bleeding, which can cause discoloration of the trunk.

Some concern has arisen regarding the potential for internal injury during the injection procedure. Drilling into the wood certainly wounds the tree and opens it up to decay organisms. The research of A.L. Shigo and Frank S. Santamour Jr. and others has shown that a healthy tree is capable of compartmentalizing a wound area with a wall of phenolic compounds that retard the spread of micro-organisms. A weak, unhealthy, or stressed tree may not have the carbohydrate reserves necessary to wall off the wound area, and decay will result. Therefore, it is essential that the injected tree be healthy and unstressed, and that the injection site not be near a previous wound or injection.

The potential for injury with repeated injections should be weighed against the injury which occurs from repeated trimming. Based on limited evaluation of injection sites, injection does not appear at this time to be detrimental to healthy trees. However, it may be that if a tree needs repeated trimming and growth regulator control to keep it within bounds, it is the wrong tree for the location and replacement should be considered.

The new growth retardants are also effective when applied as a soil drench or soil injection. As a drench, a small trench is scraped around the soil line of the tree, and the recommended dose of the chemical is poured into the trench. Alternatively, the chemical may be poured around the base of the trunk, allowing it to run down along the trunk-soil interface.

Commercial soil injection equipment may be used to inject the chemical into the soil to a depth of about six inches. The retardants may also be applied as a soil band-spray or sometimes a bark band-spray. However, if the chemical contacts grass or other plants nearby, they will become severely stunted. Regulations regarding soil and groundwater contamination must also be considered when applying chemicals to the soil.

For controlling sprout growth on a more limited scale, you may want to consider using an aerosol spray on the cut surface. Sproutgard is one percent naphthalene acetic acid (NAA) in an asphalt-based spray. NAA is a hormone that is sometimes used to promote cutting rootings, but at higher concentrations it inhibits shoot development. Chlorflurenol (marketed as Maintain A by Uniroyal) is also available in an asphalt-based aerosol formulation. Both these products come in ready-to-use 13-oz. pressurized spray canisters.

Using growth regulators for sprout control in trees is not a substitute for proper pruning practices. Limbs should always be cut back to a lateral branch growing in the desired direction and should not be stubbed off. Stubs promote excessive sprout regrowth and sometimes infection and dieback.

Other PGRs

Growth regulators for shrubs, hedges, groundcovers and other plants is an area with a large potential for expansion as the newer growth regulators become available.

The first material used to chemically control shrub growth was Off-Shoot-O. This is not a hormone-like growth regulator, but a fatty acid that destroys the meristematic tissue of the shoot apex. This inhibits shoot elongation and promotes lateral branching in the same way that manual pinching or pruning does. A major drawback to its use, however, has been the potential for foliar burning.

A newer, safer material is dikegulac, sold as Atrinal or Atrimmec. This growth regulator acts systemically to reduce apical dominance and induce lateral shoot development. It may be used both in nursery production to produce bushier, more compact plants, or in landscape management. In the landscape, it is generally used after pruning or shearing to maintain the plant in the desired

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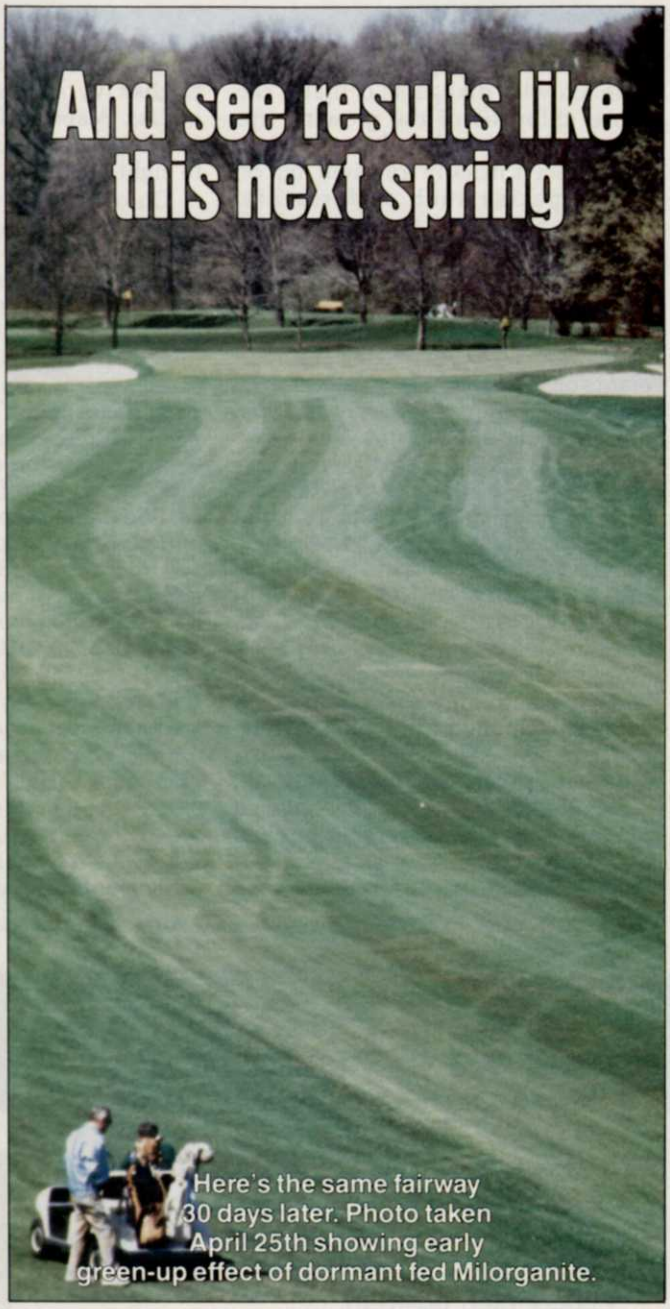
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shape through the growing season. A problem with dikegulac is that it can cause chlorosis of the growing tips two or three weeks after spraying. This effect is usually transient, but on some species such as forsythia, oleander and privet, it may persist up to six weeks.

Dikegulac is applied as a foliar spray, usually in conjunction with trimming or shearing. The rate is selected from an extensive list of woody plants on the label. The plants may be trimmed in the fall or in the spring, but they should be sprayed in the spring while they are actively growing. One application per growing season is usually sufficient, but a second application may be made if necessary.

Dikegulac may also be used to suppress flowering and fruit development of certain plants such as ornamental olive (*Olea europaea*), glossy privet (*Ligustrum lucidum*), and Japanese holly (*Ilex crenata*). It should be applied pre-bloom or during the flowering period to reduce or eliminate bloom and prevent fruit set.

Mefluidide (Embark) may be used on some woody ornamentals, but it is not labelled for nearly as many species as dikegulac. Embark may be used to control growth of ligustrum, English ivy, and burford and Japanese hollies. A spray of 2/3-oz. Embark per gallon of water reduces growth for up to eight weeks.

Chlorflurenol (Maintain CF-125) retards the growth of most trees, shrubs and vines when applied as a foliar spray. It should be applied after the new leaves are fully developed, as it may cause curling and twisting of tender new growth. Maintain is also effective on conifers, although it should be applied before the buds expand. Application to tender candles causes distortion of the new growth.

Paclobutrazol (Clipper), marketed as Bonzi for greenhouse use, is labelled for use on poinsettias.

Uniconizole (Sumagic, Prunit), a similar compound, still has only an experimental label, but is expected to be available in 1989. Both of these materials are gibberellin biosysthesis inhibitors, taken up by stems and roots and translocated to the growing points. They are apparently effective on a wide variety of plants including floral crops, bedding plants and woody ornamentals. Azaleas and rhododendrons respond to foliar sprays of Sumagic in the range of 5 to 25 ppm.

In our research on containerized liners of the Indica azalea 'Formosa.' we applied 5 ml of a 15 ppm spray to give the most effective rate of .075 mg active ingredient per plant. The Bonzi was applied as a 90 ppm spray. Sprays of Atrinal or B-Nine would require rates of 3000 to 5000 ppm to obtain comparable results. Soil drenches may be more effective than sprays, depending on the soil or container medium. Some media (particularly those with a high percentage of bark) can tie up the active ingredient and make it less effective.

It must be pointed out that these newer materials are extremely active and the amount applied must be carefully calculated, either on a square foot or a per plant basis. Spray concentrations in the range of 25 to 300 ppm have been effective on cultivars of juniper, viburnum, ligustrum, English and Algerian ivy and pyracantha. Optimum rates and timing still need to be determined experimentally for these and other woody species.

The prospects are good for more effective growth regulators for control of trees and shrubs, increasing the efficiency of landscape managers. **LM**

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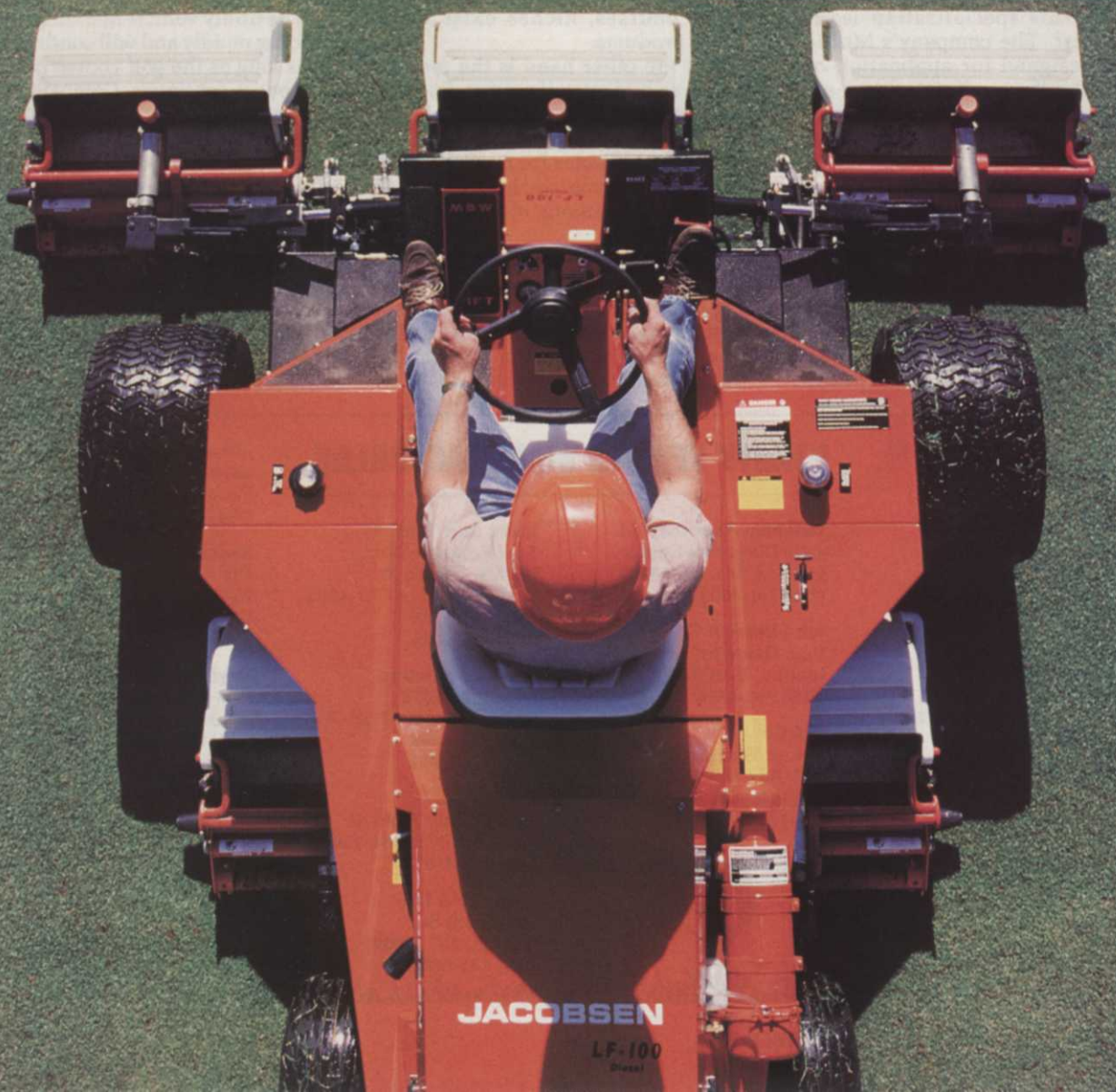

SPECIALIZING OR VERSATILITY

Some utility vehicle manufacturers are getting away from the one do-it-all vehicle to machines designed for specialized tasks. But by no means is it the end of the 'do-everything' vehicle.

Utility.Webster defines it as "capable of serving as a substitute in various roles..." Golf courses have long used turf vehicles described as "utility vehicles," and more, these vehicles are finding their way into the landscaping, parks and athletic field markets.

But a funny thing is happening along the way. Manufacturers are producing *specialized* utility vehicles. An oxymoron if there ever was one. "The trend toward specialization has been going on for several years," notes Bob Brophy of Cushman-Ryan, manufacturer of a number of popular utility vehicles.

One firm that is making a good living off this specialization is Hahn Agri-Turf. The company's Multi-Pro 44 is designed for application only. "We take the application part of the utility vehicle and specialize," explains Kent Hahn, general sales manager at Hahn.

"It used to be one vehicle for everything," Hahn continues. "But not any more." The Multi-Pro carries either a 160 gallon spray tank, a 1,000 lb. capacity hopper or a 10-inch deep bed for hauling up to 1,500 lbs. Hahn will release a version in January with a 35 hp engine capable of hauling a 300 gallon sprayer or a 3,500 lb. capacity hopper. More specialization, just on a larger scale.

UV economics

What seems to be happening is that two markets are developing within the rapidly expanding UV/golf course market. On one hand there is the specialized vehicle manufacturer aiming mostly at the higher end golf courses with the big to megabuck budgets.

These courses can afford to get a vehicle to spray and topdress like Hahn's, another to haul material and others, like all-terrain vehicles (ATVs) or converted golf cars to transport people and small loads of material, Cushman's Brophy notes. With these courses, niches exist for all these products.

On the other hand is the medium or lower budget golf course. Superintendents needing to do their job with as much economy as possible can't afford three vehicles for five jobs. They need that one vehicle, like the E-Z-Go or Cushman, among others, to do all those jobs.

"What we have tried to do," explains Frank Smith, manager of Turf Products at E-Z-Go, "is take our vehicle and make it as versitile as possible so a golf course will not have to buy more than one."

"A lucrative golf course can afford to buy specialized vehicles," he says. "The average golf course can't afford that."

Smith says that E-Z-Go's intentions are to expand its present product line and accessories to those products.

Daihatsu's John Brozek agrees with this general use vehicle philosophy. He notes that Daihatsu produces its Hijet for longevity and low maintenance, providing a standard vehicle that can adapt to the end users' own needs.

"We are selling to a very educated individual today with very specific needs," Smith contends. "We need to meet those needs."

The utility vehicle market is still expanding rapidly and will continue to do so as long as the golf course construction boom continues. Companies such as Kawasaki, with its Mule 1000, are entering the market with regularity.

This greater awareness on the part of the superintendent, having evolved from the greenskeeper into an agronomist, coupled with increased competition has improved the quality of utility vehicles and given the superintendent more options.

There seems no reason to suspect a slowdown in the market or improvements, either. **LM**

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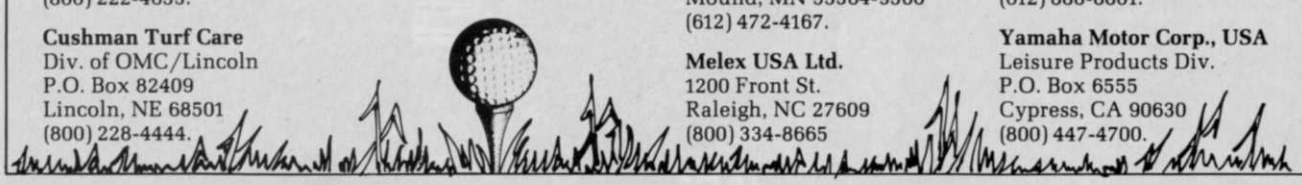

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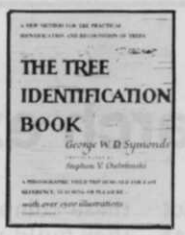

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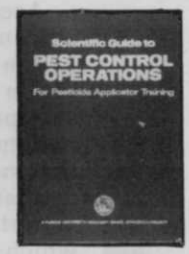

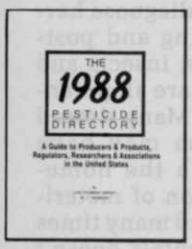

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Davey's research examines safety question

Herbicides used properly will not damage ornamentals, turf, or non-target species. That is, according to the results of a multi-year joint research project conducted by Davey Tree and Sandoz Crop Protection Corp.

The study was designed because lawn care herbicides such as Trimec, dicamba, MCPP and 2,4-D are often blamed by homeowners for damage to ornamentals. Also, a lack of research information and pictorial guides exist showing the typical symptoms of lawn herbicide damage, says Dr. Bal Rao, Davey's manager of technical resources.

"One of the most common complaints from our lawn care clients is herbicide injury to ornamentals," says Rao.

In all, 210 plants were tested beginning in 1980 at the company's research farm in Shalersville, Ohio. Ornamental shrubs and trees—including arborvitae, Colorado blue spruce, rose, privet, juniper, taxus, rhododendron, sugar maple, pin oak and linden—were randomly planted in blocks.

Questions to be answered

Key answers Rao sought included the potential for drift contamination from these compounds, the rate at which they build-up, and lateral and downward movement in the soil.

The herbicide treatments and rates per 1,000 sq. ft. consisted of: 1) no herbicide, 2) Trimec at the recommended rate, 3) Trimec at twice the recommended rate, and 4) twice the recommended rate of the three individual compounds that comprise Trimec: 2,4-D, dicamba and MCPP. "There's always the potential for damage to ornamental broadleaves by these materials (Trimec, dicamba, MCPP and 2,4-D) if the spray material comes in contact with actively growing broadleaf plants as a result of sloppy application—or if the material is applied on a windy day," says Rao.

The first applications were made in late April 1982 at Davey's standard rates and methods. No evidence of herbicide injury was found in any of the treatments until 1984, when injury symptoms were noted on only three species: linden, maple and taxus. The injury symptoms were observed in only those blocks treated at twice the recommended rate with dicamba. No other injuries were noted.

Rao says that the foliar damage noted was not permanent, and the plants eventually recovered. "If these materials are used properly at recommended rates, they aren't harmful or detrimental, and one should expect no adverse effect on non-target species," says Rao.

Containerized plants examined

The companies also completed a "dramatic drift study" where containerized plants—including rhododendron, juniper, ivy, grape and raspberry—were treated directly with dicamba, 2,4-D and Trimec.

Plants were distributed at random in test plots and treated directly with recommended rates of dicamba, 2,4-D and Trimec in August 1984. Subsequent visual observations for herbicide spray injury were made at one-week intervals until October.

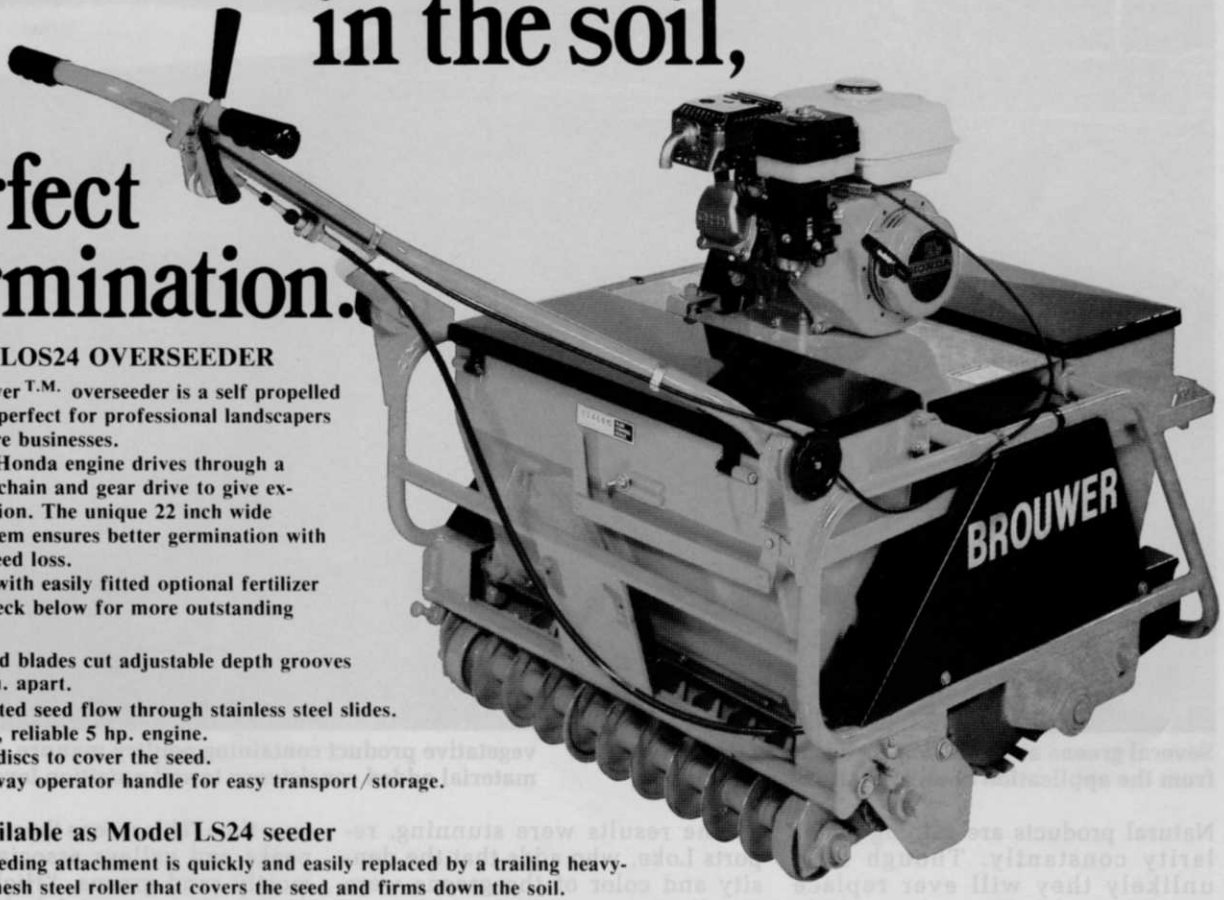
Rao discovered that various species respond differently to the herbicides. Rao and a panel of experts later rated the containerized plants on a sensitivity scale from low to high.

The Davey Tree species sensitivity study discovered that juniper experienced only a slight yellowing of young leaves from contact with all three materials, while arborvitae and rhododendron suffered damage ranging from slight yellowing to cupping of new growth, depending on the material applied. However, neither species experienced terminal bud kill or complete defoliation from dicamba, 2,4-D or Trimec.

According to Rao, less than one percent of the complaints analyzed by the Davey lab are linked to herbicide damage, and these problems are most likely caused by inexperienced applicators. "The fact is that insects, diseases, mites, or even frost and heat can cause mimicking symptoms of herbicide damage which complicates diagnosis," says Rao. "It's very hard to diagnose herbicide damage. Planting and post-planting care, diseases, insects and environmental factors are all potential causes of damage. Many times I find that the problem may have started years ago with the homeowner. Over-application of materials is quite common, and many times the damage to ornamentals doesn't appear until the following season."

Bal Rao, Ph.D, is manager of Technical Resources for the Davey Tree Co., Kent, Ohio and a monthly contributor to *Landscape Management*.

Overseeding?
put the seed where it belongs... in the soil, for perfect germination.



MODEL LOS24 OVERSEEDER

The Brouwer T.M. overseeder is a self propelled unit that is perfect for professional landscapers and lawncare businesses.

A proven Honda engine drives through a heavy duty chain and gear drive to give excellent traction. The unique 22 inch wide seeding system ensures better germination with minimum seed loss.

Available with easily fitted optional fertilizer hopper. Check below for more outstanding features.

- Powered blades cut adjustable depth grooves 2 1/2 in. apart.
- Calibrated seed flow through stainless steel slides.
- Proven, reliable 5 hp. engine.
- Offset discs to cover the seed.
- Fold-away operator handle for easy transport/storage.

Also available as Model LS24 seeder

The overseeding attachment is quickly and easily replaced by a trailing heavy-duty open mesh steel roller that covers the seed and firms down the soil.

Model LM67 Seeder

for larger areas...

The Lawnmaker 67 Seeder is a larger capacity seeder/fertilizer of rugged construction that is quick and easy to attach to any medium size tractor with a three-point-hitch. Heavy-duty adjustable teeth loosen the soil and an adjustable levelling bar smooths out uneven areas. The seed and fertilizer hopper bottoms and control slides are precision made in stainless steel for precise flow control, smooth operation and long life.

The unit is carried on two heavy-duty open mesh steel rollers that serve to cover the seed and firm the seed bed. Conveniently located controls give easy, comfortable operation. Designed for exceptional performance, the LM67 can seed up to 2 acres per hour.

So when you have large areas to be seeded in the minimum time and economically - put a Brouwer T.M. LM67 to work.

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Circle No. 102 on Reader Inquiry Card

88-83

JOBTALK

Not just a load of....

Several greens at Quail Hollow Resort in Ohio benefitted from the application of an all-natural, non-burning vegetative product containing poultry manure. The material added consistency to soil nutrition levels.

Natural products are gaining popularity constantly. Though it is unlikely they will ever replace pesticides and fertilizer, there is little doubt natural materials have a place in the market.

Last fall, Jim Loke, superintendent at Quail Hollow Resort in Painesville, Ohio, was in the market for a natural material to add to the topdressing on course greens. His need for a good natural additive resulted from a lack of Pennsylvania peat and the questionable quality of northern Ohio peat.

What he found was an all-natural, non-burning vegetative product containing poultry manure that is distributed by a Painesville-based company called Bio-Ganics. Chemical analysis of the product showed approximately a 3-2-2 percentage-by-weight N-P-K mix.

In November 1987, Loke applied the product to 11 of his greens and the practice green. Holes 3, 4 and 5 received the equivalent of 1.5 lb. N per 1,000; 1, 6, 9 and 11 received 3.0 lb. N. The double green of holes 2 and 7 served as the test green. Two received the 3 lb. rate, 7 got 1.5 lb., with the area between serving as the check plot.

The results were stunning, reports Loke, who adds that the density and color of the greens were excellent.

Application rates

Greens that received 3.0 lbs. showed no aerifier holes coming out of dormancy, the 1.5 rate showed some and the check plot showed all the aerifier holes.

"What's been real positive," Loke says, "is the public relations aspect. The golf pro, the members and the business customers were overwhelmed at the mid-season quality of the greens at the end of April."

Loke adds that the nitrogen amount put on with the natural was in addition to his regular N totals for the year. "It is a supplementary fertilizer amendment," he states.

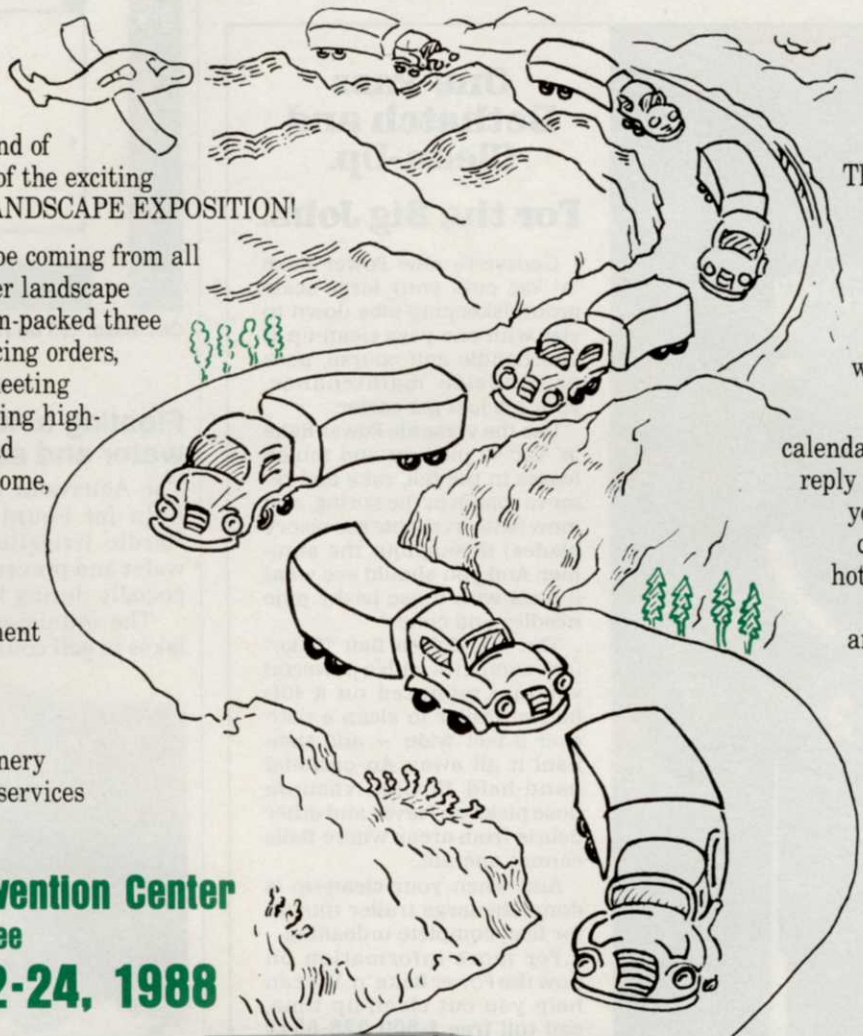
Part of the benefit of adding this and other natural products as a source of peat is their cation exchange capacity (CEC), which measures a soil's ability to hold nutrients. Straight sand has a low CEC. In addition to raising the CEC, the natural product acts as a soil buffering agent, making the soil nutrition levels a bit more consistent over time. This means there are fewer peaks and valleys associated with mostly sand greens. "High quality topdressing material holds nutrients," Loke says, emphasizing the "high quality" aspect.

"At the time of application, the turf was not lush, there was no excess top growth," Loke explains. "We just had a dense, thick, healthy green turf." Greens remained mostly disease-free throughout most of the summer of 1988. However, it is quite possible this was a result of the dry, low humidity conditions the Midwest experienced well into July.

Loke points out that this and other natural topdressing and fertilizer products are not a panacea. They are another tool. "It looks like a viable source of natural material to add to the sand," he notes. "We had it chemically analyzed and it looks like it will satisfy most of our needs."

The product Loke used, because of its very coarse texture, is not one to be used in season. It is ideal for a late fall feeding, though. If budget is not a factor, he recommends a 3.0 lb. application rate in the fall. If cash flow is tight, try the 1.5 lb. rate. Then wait until April.

TRUCK ON DOWN



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Nashville, Tennessee
October 22-24, 1988

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Circle No. 125 on Reader Inquiry Card

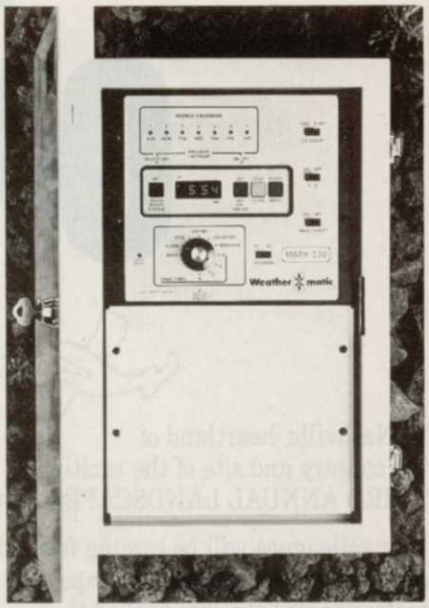
Controller handles multiple irrigation schedules

The Mark 200 series micro-processor controllers from Weather-Matic provide a choice of 12, 18, 24 or 30 stations in a heavy duty housing. According to the company, the controllers are easy to program and require minimal training.

An option of six- or seven-day calendar programming allows even-day, odd-day or third-day watering. The dual watering feature provides two independent programs with four daily start times each. Also, a start-up/back-up program automatically gives two daily watering starts on all stations in the absence of a specific program. The back-up can be switched off.

A separate test program allows the operator to run all P1 or P2 stations for two minutes each without disrupting previously programmed duration times. The test program will skip unprogrammed stations.

The company introduced the controllers at the Landscape Industry Show in Long Beach, Calif. in April.

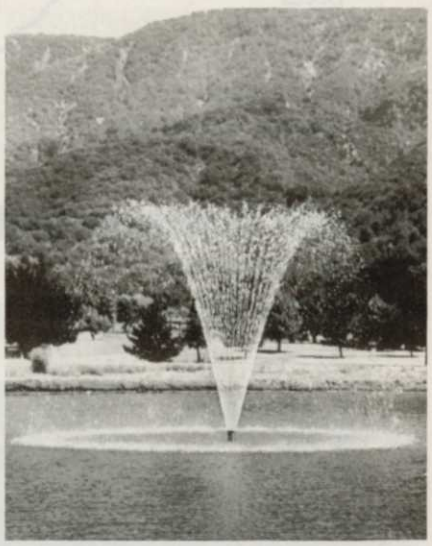


Circle No. 195 on Reader Inquiry Card

Floating aerator circulates water and adds beauty

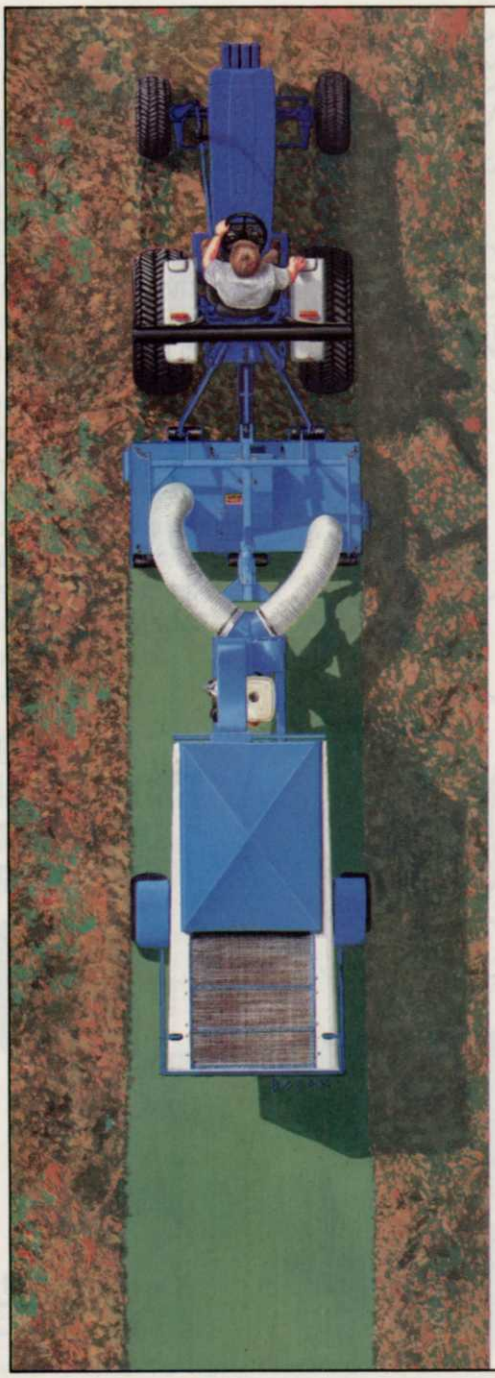
The Aquavator floating aerator from Rain Jet Fountains, a division of Hardie Irrigation, helps condition water and prevent algae build-up, especially during hot summer months.

The fountains work on ponds or lakes in golf courses, retention basins



or as general waterscape on commercial sites. The aerators have several choices of nozzle displays available, and all units can be fitted with lights.

The one-piece float body is injection molded polyethylene. Phillips 366 cross-linked polyethylene makes the float resistant to ultraviolet rays.



One-Pass Dethatch and Clean-Up.

For the Big Jobs.

Goossen's new Power Rake 'n' Vac cuts your large-scale groundskeeping jobs down to size with one-pass clean-up. If you handle golf course, park or roadside maintenance, your job just got easier.

Use the versatile Power Rake 'n' Vac to pick up and mulch leaves in the fall, rake and remove thatch in the spring, and mow (with available accessory blades) throughout the summer. And you should see what it does with those pesky pine needles and cones!

The PTO-driven flail "Rake" unit combines with a powerful vacuum mounted on a 101-bushel trailer to clean a path over 5 feet wide — and then haul it all away. An optional hand-held flexible vacuum hose picks up leaves and other debris from areas where flails cannot operate.

And when your clean-up is done, the large trailer tilts up for fast, complete unloading.

For more information on how the Power Rake 'n' Vac can help you cut clean-up time, call toll free **1-800-228-6542** (in NE, call **402-228-4226**).

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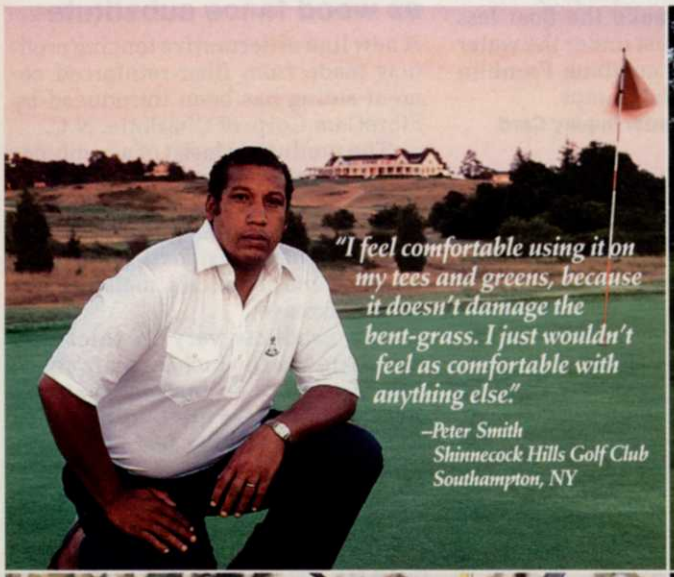
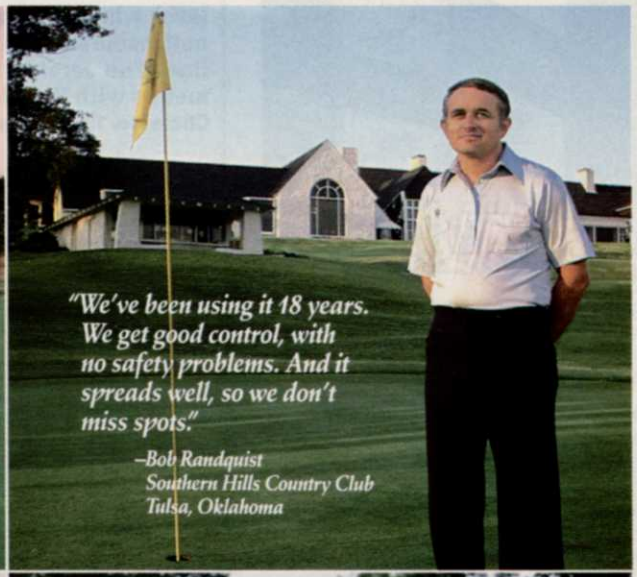
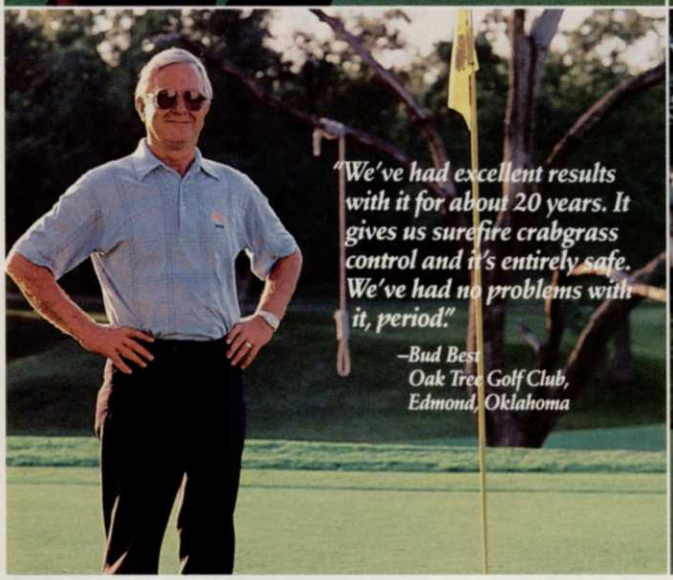
Circle No. 116 on Reader Inquiry Card

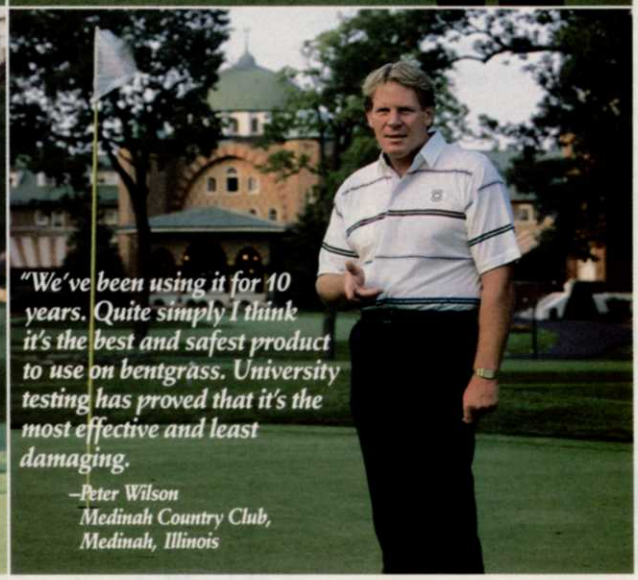
continued on page 70

Why Betasan is trusted most by the best.


"I feel comfortable using it on my tees and greens, because it doesn't damage the bent-grass. I just wouldn't feel as comfortable with anything else."
–Peter Smith
Shinnecock Hills Golf Club
Southampton, NY


"We've been using it 18 years. We get good control, with no safety problems. And it spreads well, so we don't miss spots."
–Bob Randquist
Southern Hills Country Club
Tulsa, Oklahoma


"We've had excellent results with it for about 20 years. It gives us surefire crabgrass control and it's entirely safe. We've had no problems with it, period."
–Bud Best
Oak Tree Golf Club,
Edmond, Oklahoma


"We've been using it for 10 years. Quite simply I think it's the best and safest product to use on bentgrass. University testing has proved that it's the most effective and least damaging.
–Peter Wilson
Medinah Country Club,
Medinah, Illinois

For over two decades an overwhelming majority of the country's top courses have chosen BETASAN® herbicide for their bentgrass greens, tees and fairways. That's because golf course superintendents know that BETASAN is the only crabgrass preemergent herbicide that's safe for all turf–including established bentgrass, bluegrass, fescue, perennial and annual rye, bermudagrass, Zoysia, bahia, centipede and St. Augustine.

Extensive tests have shown BETASAN to be excellent for poa annua control, too.

But don't just take our word for it; ask your colleagues at the country's top courses.

We are as confident in their answers as you can be in BETASAN.

Incidentally, it's available in both liquid and granular formulations to match any application need you may have.

For more information, contact your local supplier or call ICI Americas at 1-800-759-2500.

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Circle No. 118 on Reader Inquiry Card

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- Helps control overwatering.
- Fewer waterings needed.
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SOIL MOIST PLUS works unlike any other product to time release both water and fertilizer into the soil. It absorbs excess water with an action similar to that of a sponge. When the surrounding soil becomes dry, the product discharges the water and fertilizer into the soil as needed.

Available in bulk containers with or without fertilizer for commercial application.

Write or call for free fact sheet.

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Circle No. 147 on Reader Inquiry Card

PRODUCTS *from page 68*

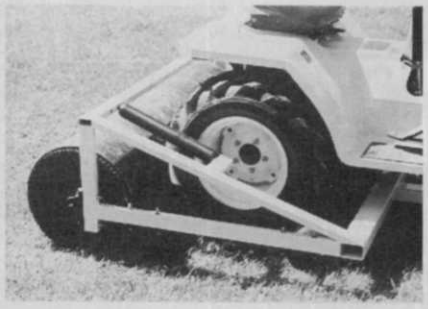
A water level adjustment feature built in to the float body assures proper float level which can make the float less noticeable sitting just under the water line. The aerators combine Franklin motors with Rain Jet pumps.

Circle No. 197 on Reader Inquiry Card

Lawn roller incorporates tractor/operator weight

The Rol-A-Lawn turf roller differs from pull-type rollers in that it rests under the back wheels of the tractor. This combines the tractor's weight, the operator's weight plus the weight of the fluid-filled roller.

The roller can be attached by one person without using tools. Simply



back the tractor onto the unit and connect the unit to the tractor. The tongue weight is less than 100 lbs. but the combined weight is more than 1,000 lbs.

The Rol-A-Lawn is ideal for golf courses, athletic fields and lawns.

Circle No. 198 on Reader Inquiry Card

Garden tractor available with two types of engine

Speedex Tractor Corp. has introduced the Falcon Garden Tractor, which offers either a 16 hp Briggs&Stratton or 18 hp Kohler twin cylinder engine mounted on a welded or solid bar frame.

The Falcon is available in hydrostatic or gear drive with many attachments, including quick attach 42-, 50-, and 60-inch mowing decks.

Circle No. 199 on Reader Inquiry Card

Cement material acts as wood fence substitute

A new line of decorative fencing products made from fiber-reinforced cement siding has been introduced by FibreCem Corp. of Charlotte, N.C.

The products consist of a combination of organic fibers, cement, silica, water and other proprietary additives for added strength, durability and long life. They resist fading, rot, deterioration and chemicals, moisture and impact damage.

The products vary in thickness from 3/8 to 5/8 of an inch for plain styles and 3/8 to 1/2 of an inch for textured styles. Plain styles are 6 to 12 inches wide and from 8 to 12 feet long. Textured styles are 12 feet long and 9 inches wide. Textured styles include stucco, timber or cross cut and are available coated or uncoated.

Circle No. 200 on Reader Inquiry Card

Moisture sensor adapts to existing irrigation

The Aquamiser micro-electronic moisture sensor from Conservation Technologies works with either existing or new irrigation systems to provide automatic moisture control on the system.

A time clock controller, solenoid valve or its own 24-volt system can power Aquamiser, which will measure narrow moisture ranges in all soils.

Aquamiser senses moisture levels

and will interrupt irrigation if moisture exceeds a preset level, determined by the user. When moisture level is low, Aquamiser allows regular irrigation schedules.

The unit senses moisture through two stainless steel probes penetrating into the root zone. A transmitted electronic pulse changes when soil moisture changes.

Circle No. 201 on Reader Inquiry Card

Vacuum loaders clean up leaves fast and efficiently

The Salsco 716 and 720 Loadervac truck loaders are both powered by

To apply granular XL is to excel in your preemergence weed control.

With just one application, you can keep your ornamental and landscaped areas free from many grass and broadleaf weeds, for six to eight months.

And because XL contains Surflan,® your control's also stronger than Ronstar® against crabgrass. And just as strong or stronger against many other weeds. At less cost, too.

Not only that, XL stays put. And once activated, it forms a barrier to prevent weed breakthroughs better and longer than anything else. Most importantly, XL is gentle on a broad range of ornamental species. Even when it's applied to wet foliage.

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New for ornamentals. Contains Surflan.®

XL™ excels.

Circle No. 112 on Reader Inquiry Card

For longer-lasting, broad-spectrum weed control, excel with granular XL.

Kohler engines—the 716 by a 16 hp and the 720 by a 20 hp.

Three-eighths-inch thick steel impellers make leaf clean-up easy and efficient. Both are constructed of heavy gauge steel with a black enamel finish.

Two options make the 716 and

720 independent trailer units: the Loadervac Trailer 750 and the Wheel Kit 751, which converts either loader to a trailer unit.

Circle No. 202 on Reader Inquiry Card

Perennial ryegrass resists diseases

Northrup King has released Caddie fine-textured perennial ryegrass, a fine-bladed, medium/dark green variety with excellent seedling vigor, superior tillering capability and uniform density.

Caddie also has demonstrated excellent resistance to many common turfgrass diseases such as crown rust, leaf spot and dollar spot. Caddie's extremely rapid germination and establishment and agressive tillering make it an excellent choice for winter overseeding of golf course putting greens, tees and fairways. Its extraordinary ability to recover quickly from cleat marks and divots is attributed to its subset crown located below the soil surface.

Caddie is a major component in the company's Medalist brand overseeding formulas this year. It will also be a component in several of the company's northern and western turfgrass mixtures and blends.

Circle No. 203 on Reader Inquiry Card

Mid-size mower makes an excellent companion

Exmark's 36-inch commercial power mower has the power to handle tough mowing jobs on its own and is an excellent companion to larger mowers. This mower's compact design and angled-corner deck provide excellent handling, balance and stability on slopes, Exmark says.

Single-adjust caster pins allow quick adjustments in mowing heights from 1⅛ to 5 inches in ⅛-inch incre-

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Circle No. 101 on Reader Inquiry Card

ments. The unique, hinged grass-discharge chute flips up for quick and easy catcher attachment and access into tight spaces.

This Exmark is available with 8 or 12 hp Briggs & Stratton I/C engines. It also has two tranmission options, variable speed or five-speed Peerless.

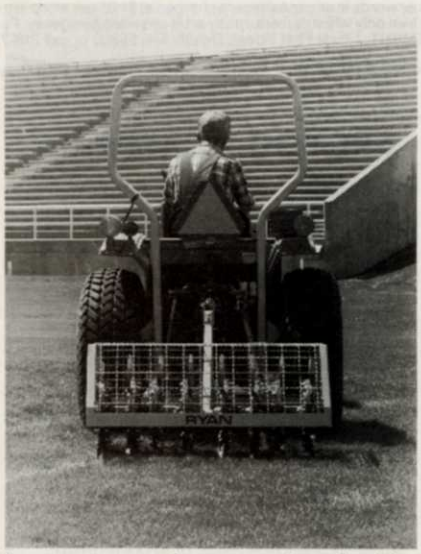
Circle No. 204 on Reader Inquiry Card

Aerator is ideal for athletic fields and school grounds

The newest model in the Rayn line of professional turf aerators is the 48-inch 3-point hitch Lawnaire aerator.

Designed for use with small utility tractors equipped with Category 1 3-point hitch, the aerator is ideally suited for aerating medium-sized areas like athletic fields and school grounds, industrial and commercial building complexes and multiple housing complexes.

The unit can be operated up to 10 mph, penetrating up to four inches deep for effective aeration and loosening compacted turf. For varying soil conditions, tine choices include coring, slicing or open-spoon type. The eight cast-iron aerating wheels are equipped with eight tines each, and



have grooves for mounting double-tine sets if desired.

Circle No. 205 on Reader Inquiry Card

Increased economy from sprinkler head

Increased economy is added to Toro's line of best-selling sprinklers, with the introduction of its new Super 604 Full Circle Sprinkler for medium residential and commercial turf areas. This new product has a lower precipitation rate to reduce runoff and waste.

The Super 604 features a dual-nozzle with pop-up to a nozzle height of 3⅛ inches for use with tall grasses. In addition, the Super 604 has an adjustable water radius feature offering up to 25 percent reduction in radius to prevent overspray.

Circle No. 206 on Reader Inquiry Card

DRAMATICALLY REDUCE HANDMOWING WITH A 68" PROFESSIONAL TRIPLEX

- Reduce handmowing up to 70%
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- Get the dependability and durability that is built into every National Mower.
- Pay less than 1/2 the price of a comparable riding rotary mower.

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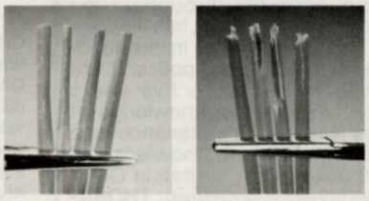

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Circle No. 130 on Reader Inquiry Card

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RATES: $1.10 per word (minimum charge, $25). Bold face words or words in all capital letters charged at $1.35 per word. Boxed or display ads: $90 per column inch-1x (one inch minimum); $85-3x; $80-6x; $75-9x; $70-12x. Agency commissions will be given only when camera-ready art is provided by agency. For ads using blind box number, add $10 to total cost of ad. Send ad copy with payment to Dawn Nilsen, LANDSCAPE MANAGEMENT, 1 East First Street, Duluth, MN 55802 or call 218-723-9200.

BOX NUMBER REPLIES: Mail box number replies to: LANDSCAPE MANAGEMENT, Classified Ad Department, 1 East First St., Duluth, MN 55802. Please include box number in address.

BUSINESS OPPORTUNITIES

Excellent business opportunity in Montana. Expanding sod farm with high potential future growth. Complete 155 Acre farm. 3 Bedroom home, buildings, center pivot and all machinery. Write to: Sod Farm, 3012 Vaughn Road, Great Falls, MT 59404. 10/88

RECREATIONAL COMPLEX SITE - NORTHWEST PENNSYLVANIA: Prime location near Conneaut Lake and Pymatuning lakes. 140 scenic acres open, 70 acres woods, 6100 feet shaded road frontage. Well-drained gravely soil. Gravel deposits, pond, gas well, attractive large house, barn, equipment building, new horse barn, miles of adjacent gravel roads for excellent horse riding. Can accommodate golf courses, ATV and snowmobile trails, picnic areas, horse rentals, hunting, housing development, etc. This area already popular with residents of Cleveland, Youngstown, Pittsburgh, Erie, numerous smaller cities. $400,000. Call owner for details 814-664-7309. 10/88

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We are dedicated to excellence and are seeking ambitious, detail oriented individuals to join our expanding team.

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As a member of our management team responsibilities include major account management, sales forecasting and budgeting, marketing, recruitment, and training. Candidates should have an undergraduate degree or equivalent and an in-depth knowledge of arboriculture.

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Responsible for developing and servicing a customer base in an assigned territory. Ideal candidate will have a college degree in horticulture or a related field and a strong desire to succeed. Previous sales experience is a plus.

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Responsible for training and supervising all field personnel to ensure that established quality control standards are maintained. This will include all phases of tree work.

Position requires at least five years of experience in all aspects of tree and shrub care. Candidates must have excellent interpersonal skills and the ability to develop and administer a formal training program.

These positions offer outstanding compensation.

Send resume with salary requirements to:

SAVATREE®
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Bedford Hills, NY 10507

CHIEF LANDSCAPE ARCHITECT: For newly created metropolitan park district in Northeastern Ohio. Will administer the planning office of the park district, assisting in long range planning, plan development of park areas and facilities, coordinate work of consultants, schedule, coordinate, and supervise construction projects. BS in Landscape Architecture required. Must be registered LA in Ohio with four (4) years experience in design and Project Management. Excellent salary and fringe benefit package. Send resume to LM Box 461. 10/88

NEW POSITION OPENING: East Coast management of one of industry's hottest site-prep attachments. Self starter should have dealer sales management experience and reside near PA/NJ/NY area. Complete resume and salary history to Box 2135, Jamestown, ND 58402. 12/88

Landscape Architects/Supervisors (project foremen) to join a nationally acclaimed firm looking to expand into its second generation Long Island area supports a high budget landscape industry. Year round employment, company benefits and continuing education available. Experienced and aggressive people send resume to: **GOLDBERG & RODLER, INC.**, 216 East Main Street, Huntington, New York, 11743. 10/88

GROW WITH TURF: Career opportunities are available for professionals with experience in lawn care, landscaping and irrigation. We're looking for aggressive self-starters to join our organization. Thrive on the challenge of our growth. Enjoy above average earnings and excellent benefits. Send resume and salary requirements to Turf, P.O. Box 433, Moorestown, NJ 08057 or call (609) 778-0780. 11/88

LANDSCAPE MANAGER: COLLEGE DEGREE OR EQUIVALENT EXPERIENCE. LARGE, MOST DIVERSE LANDSCAPE CORPORATION IN THE WASHINGTON D.C. METRO. AREA IN NEED OF AN AGGRESSIVE, KNOWLEDGEABLE, RESPONSIBLE, CAREER-MINDED INDIVIDUAL CAPABLE OF ASSUMING MULTIPLE DUTIES RELATING TO GROUNDS MAINTENANCE MANAGEMENT. SEND RESUME TO: LANCASTER LANDSCAPES INC., 5505 VINE STREET, ALEXANDRIA, VA 22310, ATTN: MATTIE SOWERS 10/88

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Immediate considerations send resume to:
LM BOX 460

Tree care person — experienced in Horticulture or Aboriculture. Will train tree climbing and/or spray applicator. Salary & benefits commensurate with ability and experience. Send resume to: Tree Care, Inc., 216 East Main St., Huntington, NY 11743. 10/88

LANDSCAPE PROFESSIONALS - Excellent employment opportunity available for career-minded individuals to join our **SPECIAL SERVICE DIVISION.** We are looking for self-motivated individuals that enjoy a challenging career. Responsibilities include overall pest and disease control in all commercial locations, as well as upkeep of major atrium plantings through a regular program of pruning and wash-downs. Salary commensurate with experience, efficiency and expertise. Call or send resume to: CREATIVE PLANTINGS, INC., P.O. Box 119, Burtonsville, Maryland 20866, Attn: Raymond Greenstreet. 10/88

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MANAGEMENT

Due to our aggressive expansion program in the midwest, east coast and southwestern regions, we are needing management personnel for all phases of our tree & shrub and lawn care services, in both residential and commercial operations. If you are "Results-Oriented" with a strong desire to achieve and high personal goals, send resume including salary history to:

Corporate Recruiter
Ever-Green Lawns Corp.
1390 Charlestown Ind. Dr.
St. Charles, MO 63303

Arborist - Tree climber and spray applicators, experienced or will train forestry or horticultural student. Tremendous growth potential. Tree Care, Inc., 216 East Main Street, Huntington, New York, Area Code: 516-#424-9440 or #424-9441. 10/88

Superintendent/Grounds Manager. 167 acre park. 30 man crew. Knowledge of turfgrass and irrigation necessary. Excellent benefits. Salary negotiable. Contact Richard L. Mueller, 4535 Main Street, Jacksonville, Florida 32206. (904) 353-3649. 11/88

CAREER OPPORTUNITY - Established growth oriented midwest firm seeks organized dynamic individual to manage landscape contracting division. Must have related degree and solid experience to qualify. Current division responsibilities include sales in excess of $3,000,000 in staff of 80. Excellent salary, commission plan and full benefit package. Send resume in confidentiality to LM Box 455. 10/88

IRRIGATION SUPERVISOR. ("INC 500 company") Experienced, aggressive, sales supervisor to manage lawn sprinkler system department including sales, installation and service. Challenging growth opportunity with good salary, benefits, and company vehicle. Send resume: Attn: Monty Mitchell, Suburban Landscape Associates, P.O. Box 2342, Davenport, IA 52809. 10/88

Florida Landscape Contractor in business 15 years, has an opening for an experienced landscape architect or highly qualified sales person to handle design build sales and business development. Applicant must be a self-starter and possess strong sales skills. Unlimited potential in a growing firm with a top notch track record. Contact Mr. Singh (305) 831-8101. 10/88

LANDSCAPE PROFESSIONALS!

Nationally-ranked landscape contracting firm **SCAPES, INC.** is seeking to hire highly-trained professionals into the position of **PROJECT MANAGER.** We have openings in our Atlanta and Washington, DC offices. Higher pay and bonuses for qualified person. Please contact **SCAPES, INC.** at (404) 956-7500 for interviews. Also hiring **EXPERIENCED LANDSCAPERS.**

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LANDSCAPE SUPERVISOR. Established company seeks responsible professional to manage crews and oversee landscape installation and care of ground covers and ornamentals. Strong management and communication skills required. Salary commensurate with relevant training and experience. Send resume and references to Boyd Enterprises, 16632 Oakmont Ave., Gaithersburg, MD 20877. 10/88

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We are a full service multi-department company with a growth curve created by careful placement of qualified individuals. Competitive salary & benefits with solid growth potential. Resumes to: Landscape Opportunities, P.O. Box 471333, Tulsa, OK 74147-1333.

LANDSCAPE SUPERVISOR. ("INC 500 company") Talented, experienced, supervisor to manage landscape department including scheduling and training personnel development. Challenging growth opportunity with good salary, benefits and company vehicle. Send resume: Attn: Monty Mitchell, Suburban Landscape Associates, P.O. Box 2342, Davenport, IA 52809. 10/88

Supervisors & Forepersons: Glen Summit Nurseries located in West Central New Jersey has supervisory and foreperson positions open in rapidly growing field of landscape maintenance and construction. If you feel you are ready for advancement or are under-employed in your present position, call us for confidential interview at 201-735-4400, 8 a.m.—4:30 p.m. or send resume to: Glen Summit Nurseries, Inc., P.O. Box 209, Pittstown, NJ 08867, Attn: Mr. Pensyl. 10/88

SALES REPRESENTATIVES - Landscape maintenance firm that has been established for 30 years in southeast Florida has several openings for over achievers. We are looking for people who can challenge our top sales person who sold over $1,000,000 in 1987. Applicants should have a background in horticulture, turfgrass management or pest control. 30-50k first year's earnings. Applications for training supervisors, service routes and pest control technicians are also being taken. Call or write Mr. DeMaria at 310 Northwest 16th Terrace, Pompano Beach, FL 33064, 305-971-0110. 10/88

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Established Central Florida landscape contractor has an opening for a highly qualified operations manager for its maintenance division. Ability to schedule, organize and manage people in a rapidly growing organization. Heavy field experience and a commitment to quality work required. Opportunity for an aggressive person to be a key member of a top-notch team. Excellent salary and benefits. Call Mr. Singh (305) 831-8101. 10/88

Landscape Maintenance Area Supervisors. Commercial & Residential Contractor seeks knowledgeable and hard working experienced field supervisors. Excellent Career opporutnities for responsible, ambitious and self-motivated individuals with 4-yr. Horticultural Degree preferred. Excellent salary and benefits. We are one of the largest landscape contractors in the country and located in one of the fastest growing States, Florida. We welcome your resumes, Oyler Bros. Company, 1930 Silver Star Road, Orlando, FL 32804. 10/88

CAREER OPPORTUNITIES

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Landscape Construction Supervisors
Foremen
Foremen Trainees
Pesticide Applicators
Arborists

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LANDSCAPE SALES CONSULTANTS: Texas' largest commercial landscape maintenance firm is currently seeking sales consultants for our Houston branch. 2 years proven outside sales experience, or an industry related degree preferred. Landscape management experience helpful. Compensation package includes, base plus commission, car allowance, incentive bonus programs, and company benefits. For consideration contact: Branch Manager, Maintain, Inc., 16008 Boss Gaston Road, Richmond, TX 77469. (713)277-2867. 11/88

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Supervisors
Salespersons
Foremen
Irrigators

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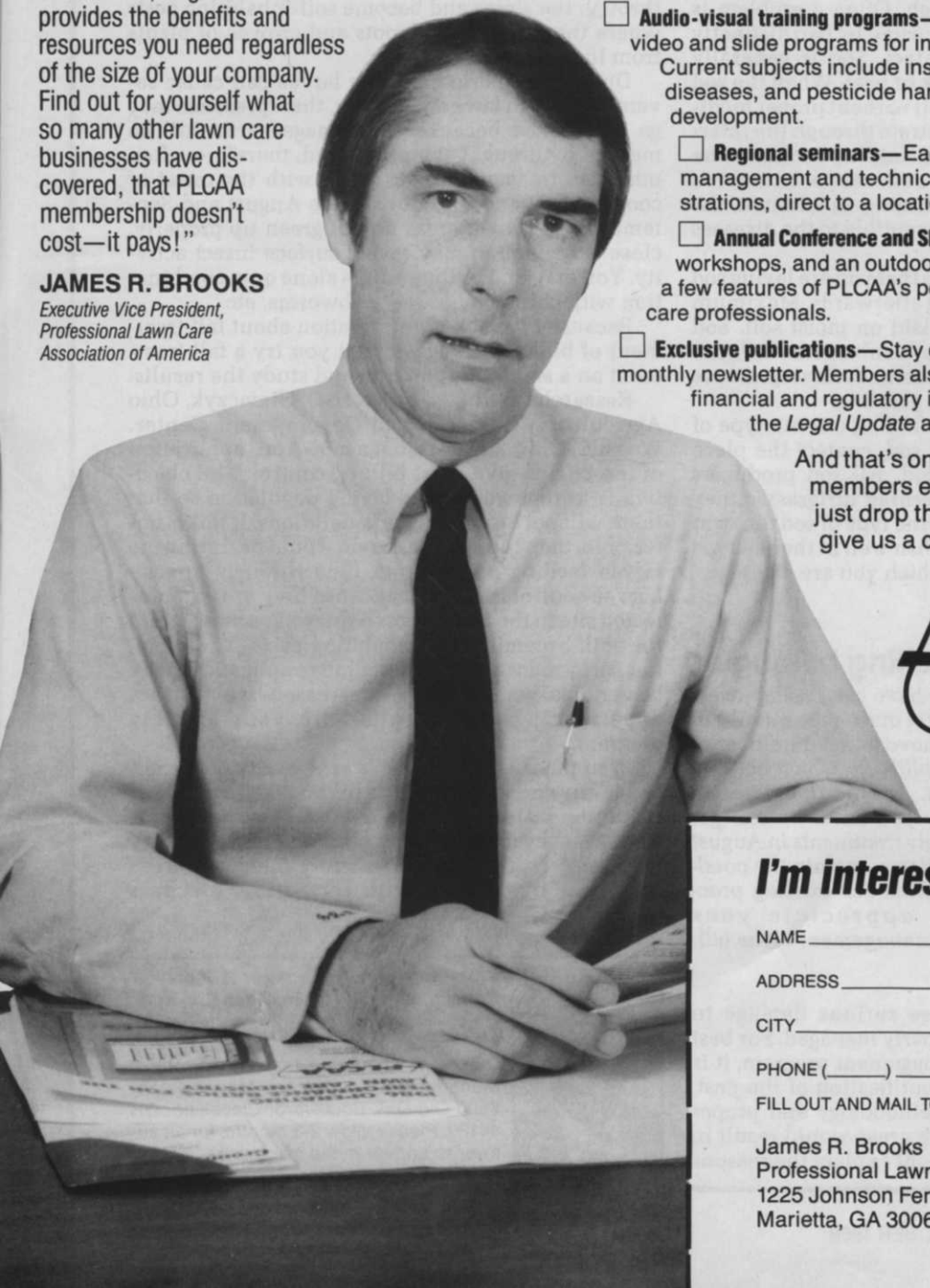

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PROBLEM MANAGEMENT

by **Balakrishna Rao,** Ph.D.

When to fertilize after sodding

Problem: *When sodding, the sod is nice and green and lays well. We feed and water it well, but in a few weeks it turns brown and gets diseased right away. What can I do for it? Is there any way of checking to see if the sod is the right mix of seed? (Ohio)*

Solution: From your question, it is not clear how soon you might have been fertilizing after sodding or how much you are applying. Ideally it is best to wait for two months before fertilizing. This would allow turfgrass to develop a good root system. If you want to use fertilizer at the time of planting, incorporate it or any other nutrient or soil modifications before laying sod.

Be sure your waterings are generous and that the water penetrates deep enough. Often a problem is caused by the soil interface created by two distinctly different soils in direct contact. Sod is generally grown on loose soil like muck or peat. When the sod is installed directly on clay soil without proper modifications, water may not penetrate through the interface, resulting in runoff and surface rooting. The resultant moisture stress can cause extensive browning, dieback or turf thinning. In addition, the stressed turf will be more susceptible to the diseases you mentioned.

Another possibility may be that you are laying sod on dry soil and then watering afterwards. Maximum rooting occurs when sod is laid on moist soil. Sod placed on dry soil experiences a substantial delay in rooting even though the sod and underlaying soil are thoroughly soaked following planting.

As far as your interest in finding out the type of turfgrass mix or cultivars of sod, contact the place where you purchased the sod. All sod producers should have literature concerning turfgrasses they are using. Ask them whether the type of sod that you are interested in would establish well in the soil type and growing conditions in which you are dealing.

Best time for controlling billbugs

Problem: *For many years we have been using insecticides for surface insect control during the months of May and June. However, we have found a number of lawns severely damaged by billbugs, which become apparent during late August. Around this time, we have found many adults. Do you think we can get control of these pests if we apply treatments in August and September? Would you please explain the possible reasons for poor control from our existing practice? Also, we would appreciate your recommendation for proper management of the billbug problem. (New York)*

Solution: Billbugs can cause serious damage to turfgrass unless they are properly managed. For best results, as with any pest management program, it is necessary to have proper identification of the pest, proper pesticides, proper methodology and proper timing. Any mistakes in these areas would result in variable performance and might explain the reasons why you have billbug problems.

It is particularly important to know the life cycle of the billbug and administer the control program during the weak point of their developmental stages. Adult billbugs are easier to control than their larvae.

Billbugs overwinter as adults and become active in early spring. They feed on turf and lay their eggs in grass stems from mid-May to July. The eggs hatch in about a week and the young, legless larvae tunnel through the stems and become soil-inhabiting pests where they feed on the roots and crowns of plants from June through August.

During this period, billbug larvae can cause severe damage to lawns. However, their presence may go undetected because the damaged area will be masked by drought symptoms and, therefore, often mistaken for moisture stress. If, with the onset of cool weather and rain during late August and September, the brown areas do not green up properly, close examination may reveal surface insect activity. You may find billbug adults alone or in combination with chinch bugs, sod webworms, etc.

Because of a lack of information about fall treatment of billbugs, I suggest that you try a fall treatment on a small test plot first and study the results.

Research conducted by Dr. H. D. Niemczyk, Ohio Agricultural Research and Development Center, Wooster, Ohio, suggests that a mid-April application of insecticide gives best billbug control. The objective is to remove the egg-laying population so that there will not be any future generations. If this is not feasible, then the next best time would be during the larvae feeding period from June through August. Larvae control is difficult because they are in a protected site in the plant stems or may have moved into the soil, becoming soil-inhabiting pests. Therefore, the performance of the insecticide applications may be variable, which explains the reasons why you are experiencing poor results with your existing program.

In summary, I feel that it is to your advantage not to use any chemical until the billbugs have emerged as adults. Instead, make a note of those lawns severely damaged by billbugs and treat those in early spring for adult control. Severely damaged areas should be overseeded with compatible turfgrass cultivars.

Balakrishna Rao is Manager of Technical Resources for the Davey Tree Co., Kent, Ohio.

Questions should be mailed to Problem Management, LANDSCAPE MANAGEMENT, 7500 Old Oak Boulevard, Cleveland, OH 44130. Please allow 2-3 months for an answer to appear in the magazine.

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